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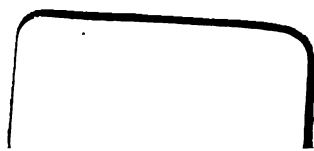
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A GALLERY AT GILLOW'S.

[Frontispiece.]

INDUSTRIAL ART



A MONTHLY REVIEW
OF
TECHNICAL AND SCIENTIFIC
EDUCATION
AT HOME AND ABROAD.

HARDWICKE AND BOGUE.

INDUSTRIAL ART:

A Monthly Review

OF

TECHNICAL AND SCIENTIFIC EDUCATION

AT HOME AND ABROAD.

EDITED BY

J. H. LAMPREY.

VOLUME I.

JULY TO DECEMBER, 1877.

ILLUSTRATED WITH ONE HUNDRED AND FIFTY-SEVEN WOODCUTS.



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P R E F A C E.



OUND volumes with Index and Introduction need a Preface. We no longer feel reluctant to come before the public with a Preface. The work issued on its own merits has been a success, and the propriety of our making a few prefatory remarks has been tested by the result. Each succeeding number of "Industrial Art" has been welcomed by that portion of the PRESS whose interests are identified with our great manufacturing industries.

Yet this is not the only welcome it has received. Our leading manufacturers have expressed their hearty approval of a Review devoted to subjects of the very utmost value to them. The Designers—on whose talent the manufacturers mainly depend for a profit on their invested capital—are happy to have a medium for reproducing and recording their newest art. The Artistic world and the large body of Amateurs in art, manifest their interest by giving their practical encouragement, to enable us to continue our efforts to make the periodical a success.

But it is not England only, as is apparent from the demand, that has felt the need of such a Review. Foreign Ministers of Education and directors of Technical schools, Artistic Societies, and employers of art workmen, and amateurs in their correspondence with us, have acknowledged the importance, necessity, and growing popularity of the work upon which we are engaged, whilst America, ever on the watch for well defined methods of instruction for her children, shows her interest in the Review by the fact that editions have been specially ordered for that country through the most enterprising firm of publishers in the United States.

Producers of new designs, Inventors in connection with Art work, and others engaged in education of a higher value, have in "Industrial Art" the surest medium of communicating their views to the public at large, whilst the general literature contained in the Review is intended to attract everyone engaged in the world of science and art, and at the same time the subjects are made sufficiently popular and entertaining for non-scientific readers, who can appreciate the labour bestowed upon the examples it contains.

INTRODUCTION.



TECHNICAL EDUCATION at Home and Abroad is a subject which has been hitherto wholly unrepresented in a special journalistic form, in either the periodical or daily press of Great Britain. There have been from time to time valuable essays written to stimulate Art Culture, whilst the articles upon cognate subjects that occasionally appear have hitherto only secured passing attention, through want of some abiding place in our literature.

The very term "Art Education" has been of late years limited to that general cultivation of the fine arts represented by "pictures," "sculpture," and "architecture," the best efforts of the designer being merely regarded as "patterns" to suit the passing requirements of the popular taste, and at the same time to swell the gains of the manufacturer who is fortunate enough to employ a skilful inventor; but, only too frequently of late, some of the simplest forms of ornamental design deserve to be ranked amongst the highest efforts of art genius, whilst the very ablest productions of our so-called artists of the period only attain to the modest level of elaborate surface decorations, when they come to be measured by the standard of true æsthetic principles.

Our Review makes the first distinct attempt to plead the cause of artist and designer alike, to encourage much neglected and little understood art science, to ally original designing power with mechanical skill, and to foster those principles which influence for good the art creations of the nation. We are confident that in our endeavour to procure the success of such a work as this, we are supplying a real want; and we are confident also that 'practical people,' who, as a rule, look coldly on artists, will begin at length to perceive the inestimable value of the subject, they will more readily take advantage of every means to contribute to the development of true art principles, by giving this praiseworthy object their influence and support.

The want of such an Industrial Art periodical has been felt ever since the Great Exhibition of 1851. While other countries have endeavoured to supply this want, so far as they themselves are concerned, we have stood still. While the Continental governments advanced by avoiding the faults and copying the successes of the Exhibition of 1851, England gained no lessons of experience from it. It is no doubt true that the large number of Illustrated Catalogues issued from that time contain examples of Art Industry which have, in some measure, served as text-books for designers up to the present. But it is no less true that the slavish imitation of the patterns contained in these Official Records serve only to perpetuate the Bad Art of 1851. It must be remembered that this was the one result of the filtration of these patterns, poor as they are now known to be, through the then newly founded Schools of Design, and by means of the scientific Hand-Books and Art Journals of the day. The mistakes and follies, the faults and foibles of art in 1851, were, and are, perpetuated by these means. This may be proved by any impartial observer's examination of the permanent decorations at South Kensington Museum, where the vilest types of a debased *renaissance* were selected by the ignorant art pretenders who were then in authority, who had no knowledge of true *renaissance* in art. In this matter their more cultivated successors have introduced an improvement. It has been our object since we commenced this work, to search out and reproduce the finest "bits" of pure *renaissance* wherever they exist, whether in early MSS., or in other works of art of the fourteenth and fifteenth centuries. We state this without any display of vain boasting, without one glow of triumph. We are only too glad that we can publish what is correct, but we

are also profoundly sorry that the South Kensington authorities should for so long a period have ignorantly adopted that which was wrong. It would be unjust to leave this portion of our subject without acknowledging the assistance we have received from the directors of foreign Art Schools, and from our personal friends everywhere, interested in the *renaissance* period. Our attention has been frequently drawn to the best sources of information, and more than once we have been assisted with the finest examples procurable.

If we had been unaided, it would have been impossible for us to inaugurate a new system. If we had had to contend single-handed against the mistakes, monopolies, and toadyism of the present day, in subjects relating to Art Culture, we should have been unable to accomplish such a work. It would have been more than the cleansing of the Augean stable. But we have been fortunate in securing the assistance of those whose voices must be heard above the murmurs of place seekers and the grumblings of a despicable nepotism. Popular opinion is aroused on the subject, and those in Authority are on our side. Nor in mentioning our sources of help, can we fail to pay tribute to the efforts of the Great City Companies, the Industrial Colleges, or the promoters of the newly projected Technical Universities and Trades Schools, and all those who with them have endeavoured, and are endeavouring, to found a correct system of Technical Education amongst us.

We are heartily obliged for the support already received, and we are glad to be able to report the increasing number of illustrations, in the engravers' hands, of objects intended for the Paris exhibition.

A glance at the Table of Contents will prove to the reader how varied are the characteristics of our Review. We not only deal with Technical Education generally, we record the march of progress in relation to the subject, and note the endeavours made to encourage it in Dublin, Glasgow, Yorkshire, and Bristol, by means also of a newly established system of art education in Manchester, and by the proposed Science Museum in London, as well as by grants to Local Museums, and the foundation of a Technical University. Further, we advocate in the strongest terms the Education of Women in Science and Art by means of female employment in art designs, and by the establishment of Technical Industry Schools for Women. British manufacturing industries occupy a large portion of our space. The latest inventions in practical technology have been noticed, while Literature in connection with the subject has not passed without criticism. Our Art Education at home has been contrasted and compared with that of foreign schools in Denmark, France, Germany, Austria, Russia, and Japan. Even Central Africa contributes, through these pages, its quota of information respecting its technical industries and Industrial Arts. Lectures and Reviews of art and science work complete the long list of subjects to be found in our pages. So far as we know, all objects of art, all subjects within the domain of practical industrial science, help in contributing to this volume. While the higher paths of art culture have neither been avoided nor ignored, our main object has been to make all works of art, from a mediæval necklace to the latest invention, help in the formation of a higher taste, and to encourage each attempt at originality of design.

Finally we believe that we have so far succeeded in realising our ambition to render "Industrial Art" worthy of a place with the best literature of the day. We are determined to make it a reliable source of information on those topics which are of the deepest interest in connection with human life. It may be urged that such investigations are not needed; that our fathers and grandfathers knew nothing of such new-fangled notions as we advocate, and yet lived and died good men. But the remark made by Dean Stanley at Bristol a short time since, when addressing the classes formed in connection with Oxford, is profoundly real. He said that life had been called a Probation, but he looked upon it much more as an Education; and then, showing that the same reactionary principles which were applied to education had been applied without success to stay the chariot wheels of progress in other epochs of the world's history, he concluded his remarks, as we shall do, urging on the advancement of intellect, and the triumph of possibility over apparent impossibilities, by a quotation from Edmund Burke—"Let us pass on. For God's sake, let us pass on."



TABLE OF CONTENTS.

	PAGE		PAGE
The Caxton Quatercentenary Celebration at South Kensington	1	Ladies' College in Rome	100
Technical Education in England, Past and Present	2	The Turners' Company	101, 156
Lyons Silk	5	Carpet Printing	104
Naval Education	9	Drawing Materials	106, 107
The Conservatoire des Arts et Métiers	10	The German Renaissance	107
Retrospective Notes	13	Idle Hours in a Moorish Market	109
Portraiture on Coins	33	The Austrian System of Weaving Schools	112
The New Museum in Dublin	35	Danish Goldsmiths' Work	115
Museum of Scientific Apparatus	37	Piano for the Princess Charlotte of Prussia	116
École Polytechnique, Paris	44, 78	The Paris Exposition of 1878	130
The Iron and Steel Institute, and the Institute of Civil Engineers	47	The Present Depression of Trade	130
The Second Annual Exhibition of Paintings on China	48	The Tanners' New Association	132
Recent Appointments at South Kensington	50	English Pianofortes	134
Flemish Tapestry Manufactured in Italy	50	After Dinner Chat about Dress	137
Exploration of Samothrace	52	Fresco Painting, by N. H. F. Westlake, F.S.A.	140
Drawing Models for Children	54	Industrial Art and Fine Art	142
The New German Patent Law	55	At Gillow's	161
How I found a Caxton	55	The Royal Academy and the Decay of a Noble Art	162
Preservation of Objects of Ancient Irish Industrial Art	66	Persian Carpets	164
Provincial Museums.	68	The Estey Organ	166
Renewed Commercial Treaties	72	Sculpture	168
Technical Education in Austria and Germany	73, 102	Board School Art Teaching	173
Glasgow Institute and the Fine Arts	76	New Photographic Appliances	174
Flemish Italian Tapestry Weaving, and the Collection		Moorish Architecture	175
of the House of Este	80	Reviews, 15, 16, 18, 22, 23, 56, 58, 85, 117, 118, 120, 148,	150, 152, 156
Technical Education in France	82	New Inventions	27, 58, 122, 153
Our Technical University.	97	Notes	29, 60, 88, 121, 154
Elementary Drawing and Technical Education	100	Exhibitions	28, 62, 93, 124, 156
		Correspondence	125, 157



LIST OF ILLUSTRATIONS.

	PAGE		PAGE
A gallery at Gillow's.	<i>Frontispiece</i>	Arm-chair in Ebony.	86
Prize design for cover for Industrial Art	<i>Title</i>	Door Hanging.	87
Ancient Printing Press	2	Porcelain Vases	90
Book covers of 14th and 15th century	2	Wrought-Iron Gateway	99
Cover of Album	3	Gold Ornaments	101
Chair	4	Garland of Gold and Jewels	103
Arch of Titus	6	Bronze Urn	105
Wardrobe	7	Silver Chalice	106
Gien Faience	9	Piano	108
Æsculapius from the British Museum	11	Turkish Pottery	109
Casket by A. Dürer	12	Bronze Fire-Guard	111
Narcissus from Naples Museum	13	Lace Pattern	113
Vases, &c., in Doulton Ware	14, 15, 18	Danish Gold Ornaments	115
Cabinet from "Art in the House"	17	Censer Pot	119
Tabouret.	19	Gold Necklet	121
Façade of Monument of Selmyssos	21	Sacramental Screen	123
Jewelled Solitaire	23	Moorish Jug	124
Cover of Album	25	Oriental Frame	131
Eros, from the Vatican	27	Piano	135
Lions' Gate at Mycenæ	29	Vase	137
Ancient French Leadens Tokens	30	Fireplace of White Glass	139
Ancient English Coins	32	Earthenware Jug	140
Iron Casket	33	Moorish Embroidery	141
Stained Glass Window	36	Faience Jars and Tazza	143
Arm Chair	38	Greek Vase	145
Tapestry	39	Jug of Glazed Ware	146
Silver Jardinière	41	Armoire in Ebony	147
Piano	42	Silver Cup	151
Beaker	47	Fresco from Durham Cathedral	152
Paintings on China	48, 49	Heraldic Device by Dürer	155
Embroidered Casket Cover	51	Press in Hazel and Boxwood	163
Majolica Drinking Fountain	53	Persian Carpet	165
Silk and Gold Embroidery	55	Estey Organ	167
Wood Carving	57	Indian Water-bottle in Silver	169
Crown for Summit of Vienna Exhibition	58	Coptic Goldsmiths' work	171
Corona Lucis	59	Dagmar Cross	172
Doorway at Donoughmore	66	Specimen of Lace from Austria	173
Western Arcade, Ardmore	67	Portable Photographic Appliance	174
Chair	69	Gold Ornament from Timbuctoo	175
Painted China	70	Greek Vases of Archaic Type	177
Flower Vase in Gilt Bronze	73	Gun-lock of wrought-steel	178
Monumental Sculpture	75	Arm-chair	181
Flagon	76	Arabian Glass Lamp	182
Carved Oak Press	77	Moorish Designs	183
Necklet	79	Head-pieces, Ornaments, &c. 1, 5, 16, 27, 29, 32, 44, 56, 60, 65, 84, 88, 97, 102, 117, 126, 129, 148, 153, 161	
Vase and Beaker of Glazed Earthenware	80	Initial Letters	1, 35, 37, 44, 50, 52, 65, 68, 72, 78, 132, 136, 161, 175
Lacework	81		
Cast-Iron Table	83		
Goblet with Cover	85		



INDUSTRIAL ART.

"We English live in the midst of an energetic rivalry of competing nations. The aim of our national life should be to do the work of the world better, more ably, more honestly, more skilfully, and less wastefully than the skilled men of other countries."—J. SCOTT RUSSELL, on 'Systematic Technical Education.'



BEYOND all doubt, Printing ranks foremost among the Industrial arts, and, therefore, it is gratifying to see that such effective preparations have been made to celebrate the Quatercentenary of its introduction into England.

With the cheerful co-operation of an influential committee, the ceremony at South Kensington on the eve of our going to press could not fail to be worthy of the occasion. Many of our readers will be familiar with the delightful biography of Caxton, by the late Charles Knight, by whom it was prepared *con amore*, with all the zest of one who was no ordinary

follower of the great master as a practical printer, and a populariser of pure literature. The happy idea has suggested itself to the eminent firm of Messrs. William Clowes and Sons, that the volume should be reprinted; and it has been carried out in such



artistic style, both in letter-press and illustrations, that it will constitute a very appropriate souvenir of the event now being commemorated. Not only so, but Messrs. Clowes, with a liberality which redounds to their honour, have announced their intention of devoting the profits arising from the sale to the Caxton Fund. A more pleasing tribute they could not well have paid the memory

of the English pioneer of the noble art in which they stand themselves so deservedly high.

It may not be uninteresting to add that Caxton was a member of the Mercers' Company, which, at that time, had fallen from its high estate, but which, soon after, regained its ancient *prestige*. Perhaps the circumstance of having inscribed on their roll such an illustrious name, was no small incentive to this wealthy and powerful Guild to lead the van, recently, in the promotion of technical education and industrial art. But this is only in harmony with their antecedents, for in the reign of Henry V. we find that they maintained a well-equipped and successful school.

Of the obligations under which William Caxton has put modern civilisation in its highest phases, this is not the place to speak. Every reflecting mind recognises in him one of the greatest benefactors of England. Indeed, to adopt the language of our most brilliant essayist, we may say of printing what he said of the gifts of Athens to man. "When those who have rivalled her greatness shall have shared her fate; when knowledge shall have fixed her abode in distant continents; when the sceptre shall have passed away from England; when, perhaps, travellers from distant regions shall in vain labour to decipher, on some mouldering pedestal, the name of our proudest chief; shall hear savage hymns chanted to some mis-shapen idol over the ruined dome of our proudest temple; and shall see a single naked fisherman wash his nets in the river of the ten thousand masts—its influence and its glory will still survive—fresh in eternal youth, exempt from mutability and decay."



TECHNICAL EDUCATION IN ENGLAND, PAST AND PRESENT.

IN reading the biographies of any of our great scientific men, one cannot but remark how one and all of them lament the difficulties which they encountered during the earlier portion of their career in obtaining instruction in the special branch of knowledge which they pursued.

In England up to the present century very inadequate technical instruction could be obtained except at the Universities, and was consequently out of the reach of the mechanic and artisan classes.

It has been often well said, that the English workman's education in the principles and technicals of his craft resolved itself into simple rule-of-thumb methods; and that abroad, the craftsmen were ahead of our own both in workmanship and sentiment.

The Exhibition of 1851 gave circumstantial evidence to the truth of this assertion. Since that world's fair (as it was called) took place, and our own shortcomings and failings were brought to light, what strides has English handcraft made, and how many opportunities for instruction and self-improvement have arisen and in 1877 become matters of course!

But although very much has been accomplished within the last quarter of a century towards sound and practical instruction in principles and their application, much still remains to do for Technical Education.

In France, Belgium, Germany, Holland, Switzerland, and Austria, increasing opportunities were annually granted to craftsmen and men of science for pursuing their subject and obtaining thorough instruction. England and Russia contrasted unfavourably in this respect with these countries, similar facilities being certainly limited and very expensive. Within the last few years Russia has made vast progress in educational matters, and merits place with other artistic and scientific nations. The labours of the Pedagogic Society of St. Petersburg alone, founded in 1864, may be referred to as a proof.

We will now endeavour, in a very general way, to glance at what has been done and is doing for technical instruction in our own country during the past half-century.

It would perhaps not be incorrect to say that the foundation of mechanics' institutes some five and thirty years ago, and with them of free libraries and reading-rooms, is the root from which Technical Education in art and science has grown to its present dimensions. They began principally in the chief manufacturing towns of the north of England, in a very humble way. To Manchester belongs the leadership in this matter; but Birmingham, Leeds, Sheffield, Wolverhampton, and other towns soon followed; and indeed any centre of manu-

facturing industry now boasts of at least one, if not both, of these establishments for its working members. These mechanics' institutes afford to artisans at as moderate a rate as possible, by means of evening classes, lectures, meetings, and discussions, valuable opportunities for self-help and education, and by them some really good results have been produced, and much practical knowledge has been disseminated.

One of the earliest institutions started for higher instruction in technical science was the College of Engineering, established at Putney about 1840. This comprised schools for teaching (chiefly in mechanics) theoretical principles, and also complete workshops in which the theory learnt in the schools could be carried out by the students under competent supervision. The College was open for some ten or fifteen years, but ultimately died away, owing probably to inconvenience of locality, to the high fees charged in order to secure successful support for the maintenance of the enterprise; and finally through the gradual spread of means of instruction obtainable at mechanics' institutes. About the same time also, the present Royal School of Mines was established, in which special education is given in mineralogy, metallurgy, chemistry, geology, and cognate subjects especially connected with mining. To these physical sciences is joined the study of mechanics, involving the principles of shaft sinking, gallery driving, pumping, blasting, getting and boring, ventilation, haulage, and such-like operations. The Museum of Practical Geology in Jermyn Street, opened in 1851, is connected with the Royal School of Mines.

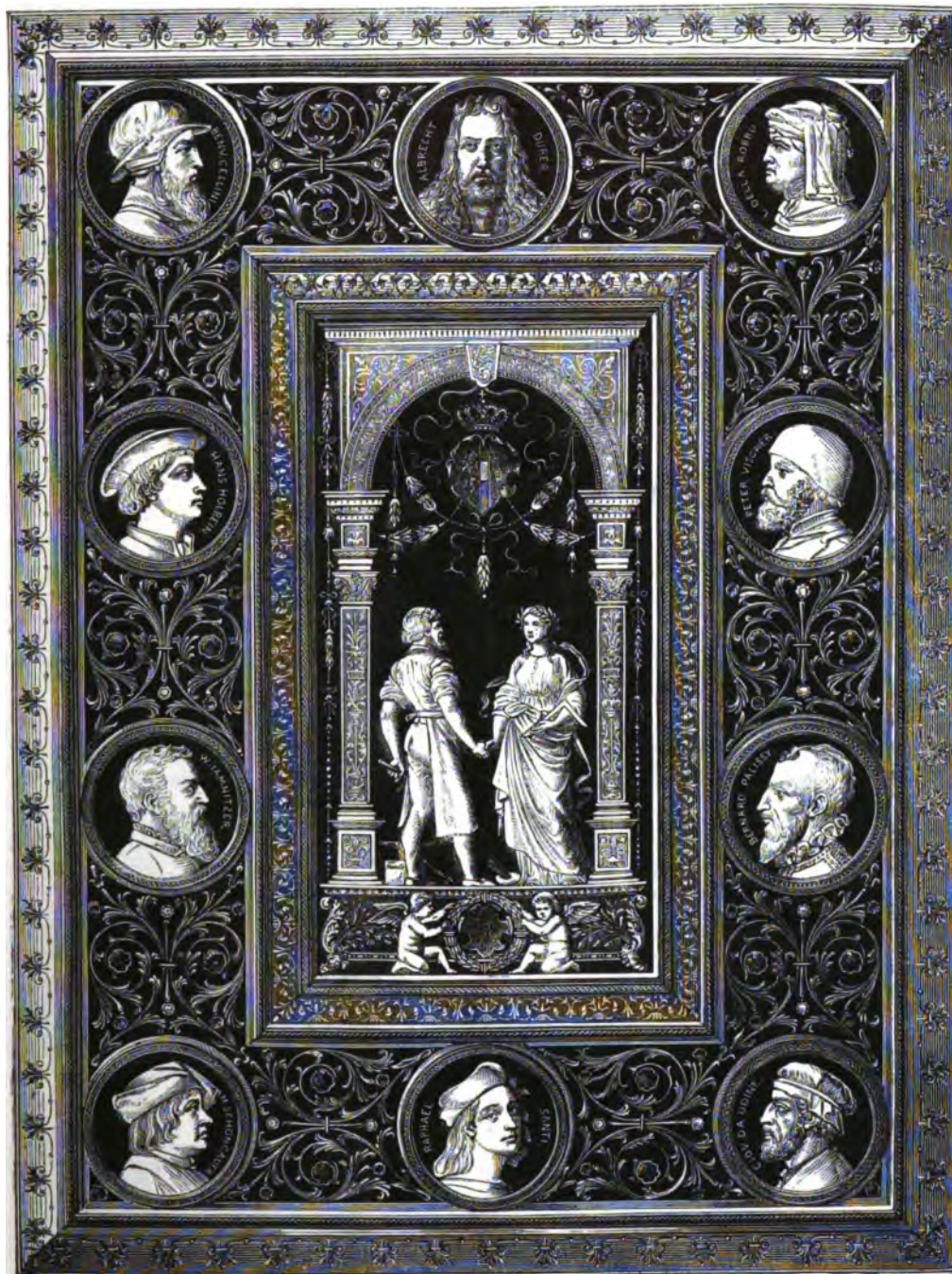
Another successful institution, begun about 1850, was the College of Chemistry in Oxford Street. This school for pure chemical research and study, aimed at giving to students, at a moderate rate, thorough practical and theoretical teaching. The very able and gifted Dr. Hofmann, now Professor at the University of Berlin, was head of this college until it ceased to have existence; for when the present science schools of the Science and Art Department were established, the College of Chemistry was broken up, and transferred students, library, and laboratories, to South Kensington.

The Agricultural College at Cirencester is another of the elder brethren of modern scientific establishments. At this college the theory and practice of Agriculture are taught; also chemistry in relation to soil, aspect, and manures; the rotation and growth of crops, and all other such agricultural problems. The College has accomplished in a quiet manner an immense amount of useful work.

The Schools of Art and Science founded by Government, under the direction of the Council on Education, are undoubtedly the most important establishments for technical education in England. The Art Schools begun in 1837, under the title of "Schools of Design," were first opened at Somerset House. Afterwards in 1853, they were transferred to Marlborough House. The classes continued to increase, and in 1857 were moved

permanently to South Kensington. Many valuable prizes are attached to these schools, and are open to male and female students. Besides these at Kensington, which may be called the central organisation, there are eleven schools of art in the metropolis, and nine hundred and

the centre for Science classes dispersed throughout the country. These schools are fitted up completely, both for lectures and practical work. The following list of subjects studied in the Science Schools will show the complete nature of the work carried on.



COVER OF ALBUM, DESIGNED BY PROF. STORCK AND PROF. LAUFBERGER.

fifteen schools and classes over the country, all connected, as to instruction and Government grants, with the Science and Art Department. In 1876 there were 51,222 students examined in these schools.

The Science Schools opened in 1872, under the supervision of the Department, are also permanent, and form

Practical, Plane, and Solid Geometry ;—Machine Construction and Drawing ;—Building Construction ;—Naval Architecture ;—Pure Mathematics ;—Theoretical Mechanics ;—Applied Mechanics ;—Acoustics, Light, and Heat ;—Magnetism and Electricity ;—Inorganic Chemistry ;—Organic Chemistry ;—Geology ;—Mineralogy ;—

Animal Physiology ;—Botany ;—General Biology ;—Mining ;—Metallurgy ;—Navigation ;—Nautical Astronomy ;—Steam ;—Physical Geography, and Physiography ;—Principles of Agriculture.

The growth of Science Classes and Schools has been very remarkable, as in 1876 there were 1456 of them under Government, containing upwards of 57,988 students.

Space compels us to conclude with a simple enumeration of some of the other existing institutions in London for scientific and technical study.

The Engineering School at the Crystal Palace. It has library, lecture rooms, and workshops, and has been very successful.

The Day and Evening Classes at King's College, giving instruction in mechanical and other sciences.

The Classes at University College.

The Birkbeck Institution's Evening Classes, Southampton Buildings, Chancery Lane.

The Classes of the London Institution, Finsbury Circus, for male and female scholars.

The College at Cooper's Hill, entirely devoted to the higher branches of Engineering.

The Working Men's College, Great Ormond Street.

The Working Women's College, Fitzroy Street, Fitzroy Square.

The Artisans' Institute, Castle Street, St. Martin's Lane.

The South London Working Men's College, Blackfriars Road.

The Gresham Lectures, "For the instruction of youth and others of this City (London), in useful knowledge," founded by Sir Thomas Gresham, who died in 1579. For the year 1874, the subjects of these lectures were Astronomy, Physics, Rhetoric, Law, Geometry, Divinity, and Music. The lectures are given in Term time only at the present Gresham College, which was opened in 1843. Sir Thomas Gresham's Foundation however, provides specially that lectures should be given "every day of the week" for the instruction of youth.

The Scholarships founded by the eminent engineer and mechanician Sir Joseph Whitworth, Bart., of Manchester, for aiding youth in technical study, have given great impetus to practical teaching.

This Foundation was established in 1868. It comprises thirty scholarships, of the annual value of 100*l.* each, which are tenable for three years.

According to Sir Joseph Whitworth's desire they are to be applied, "For the further instruction of young men not exceeding twenty-six years of age, natives of the United Kingdom or her Colonies, selected by open competition for their intelligence and proficiency in the theory and practice of mechanics and its cognate sciences." Sir Joseph further expresses his hope that means may be found for bringing science and industry into closer relation with each other than at present obtains in this country.

The holder of these scholarships may travel, go to the universities or colleges affording scientific or technical

instruction, and can be aided in getting admission to machine shops and other practical establishments. In 1873, at Sir Joseph Whitworth's desire, the holders of his scholarships were required to devote themselves "entirely" to the prosecution of their education as mechanical engineers.

The scholarships are not to be applied as rewards for past merit, but as aids and encouragements to further study. Theory as well as practice in the shop are expected from the scholar by examination, and he receives a certificate of merit on his producing satisfactory evidence of his self-improvement from the place of study, or workshop, which he has attended during his three years' tenure of his scholarship.

The examinations for Sir Joseph Whitworth's Scholarships are held annually. The last was held in May, 1876, under the Science and Art Department of the Council on Education, to which the carrying out of the details and purposes of Sir Joseph's munificent Foundation has been by him entirely entrusted.



FROM VIENNA EXHIBITION. DESIGNED BY SCHOENTHALER.



DESIGNED BY SCHOENTHALER, OF VIENNA.

LYONS SILK.

SINCE the days of the "Most Christian King" Louis XI. Lyons has experienced many vicissitudes of fortune. The first silk-manufacturing city of Europe, she has been subject to frequent trade crises, from the times of Brissonnet and Turqueti to those of Lassalle and Jacquard. At one time rich and flourishing, her loom weavers—exempt from taxation, and exceptionally favoured by royalty—were regarded as the most prosperous subjects of the French monarch; while at another, history depicts them perishing by hunger and relieved temporarily by a Quixotic decree of Francis I.

The wars of the Fronde, the Revocation of the Edict of Nantes, the revolt of the city against the Convention in 1793, the Austrian campaign of Buonaparte in 1814, the riots of 1836-7—all have contributed in a greater or less degree to cause serious distress and great depression in the trade.

Just now we hear of new treaty relations to be entered into between France and England, and negotiations pending between the respective governments. It seems strange, in the face of the history of the past seventeen years, and the vast gains of France by the free-trade system, to find that there can still exist a body called a Prohibition Committee, urging severe fiscal restrictions upon all imports, and influenced by protectionist sympathies. M. Pouyer-Quertier and his friends will do well to remember that during the first nine years succeeding the treaty of 1860 the export of French silk increased twenty per cent., and that although the English manufactories of Coventry were almost ruined by the competition, yet we heard no murmurs in this country of prohibitory statutes or exorbitant duties. Lyons is at present passing through a severe crisis,

owing to prolonged depression of the silk trade, but from causes not akin to those which we have already enumerated as affecting the history of her commerce.

There are a vast number of looms employed in the trade, and these are scattered throughout Lyons, the suburbs, and the surrounding country. Of manufactories proper there are practically none, save for dyeing purposes. The principles of conducting the work are almost as simple as they were in the fourteenth century. The town weavers are congregated, for the most part, in the Faubourg Croix-Rousse, and here it is that the father of the family, with his wife and children, or with his journeymen, works up the raw material as he is instructed by his employer. Now, as we write, hundreds of these looms are silent, and the *chef d'atelier* and simple journeyman alike are out of work. A great cry of distress has come from the south, for the raw silk is not to be had, and busy hands are idle perforce. Even supposing the employer has a large stock of it on hand, he does not give it out, for he is unable to pay the weaver for the finished production, because he himself cannot sell at present market prices.

The ends of the earth have been searched for the causes of this depression. People apparently sane have gone so far as to assert that poor M. Ordinaire, by an unfortunate speech in the French Chamber of Deputies, has blighted the commercial prospects of the Lyonnaise so far, at least, as silk is concerned. Anyone capable of broaching a theory so absurd must be ignorant of the simplest principles of sociology or political economy, and we humbly suggest a perusal of the works of Mill, Buckle, or Herbert Spencer, or at least half an hour's conversation with the shade of Adam Smith.

Other theorists, perfectly well informed of course, and in consequence delightfully vague, refer to the war in the East, and the political complications in Western Europe, and fancy that these explain all difficulties, and that they have satisfactorily solved the problem. Some have

hinted that the weavers of modern days are not so enterprising nor so inventive as their forefathers, while others—unkind critics!—have pointed to the lowered quality of the silk, and spoken of this as if it were a cause, and not, as it really is, a consequence of the continued depression of trade. It certainly is not from want of enterprise or invention upon the part of the Lyons weavers that such a state of things has come about. The newspaper correspondents and would-be-critics have placed the cart before the horse, since the Lyons weaver, admitting the deterioration of the manufactured article, is not the author of the wrong, but the victim of surrounding circumstances.

Some wiseacres suggested that the depression was due to the failure of the silk crop of 1876, but almost everyone knows that it produced a transient prosperity, and that in a few weeks many thousand pounds sterling were

not even attempt to get at the root of the evil. We are quite aware that over-production is telling upon the market, and that, for instance, the Americans of both North and South have to consume immense stocks of Lyons produce before the demand can again be in excess of the supply, but over-production is only a partial and indirect cause of the state of affairs, if indeed it can be called a cause at all. Something also may be said in favour of the theory that it is a sympathetic depression, one due at least in part to the universal stagnation of trade. The depression of our own great industries is lamentable, and from natural causes it reacts upon no class of trader in so great a degree as it does upon the dealer in, and producer of, what is after all but a luxury. In such crises extravagance must go to the wall for a time. Then comes a continued fall in prices, and then as a consequence employers stop their looms.



ARCH OF TITUS.

made in Lyons. It must, however, be admitted that the weaver was not benefited by this passing success, for it was simply the result of day to day speculation in raw silk, and the market quotations of the last six months, as applied to the manufactured article, are merely nominal, for the raw material was never employed in any quantity at these rates.

When we hear people say that high-priced silks are a drug in the market, and that business is at a stand still, we must look a little deeper into the question before we venture to pronounce upon the causes of the depression. Of course it is possible to write with gravity and impressiveness about abnormally large production being synchronous with a diminished demand. But this is, after all, nothing but tall talk. Ignorance always clothes itself in this kind of verbiage. This is merely a statement of the question which is patent to all, and does

The big buyer, who has a sufficient stock in hand for present purposes, holds back until deeper distress causes a further fall, and then perhaps becoming a speculator buys for the rise, and waits for prices to recover. This is the truth, but not the whole truth. Must dealers and producers and speculators bear all the blame? Must we look at them as a syndicate of ogres, eager to devour the community at large? Have we ourselves had no part in the matter? We have not encouraged or demanded spurious imitations. We have not lived beyond our means, and tried to vie with our richer neighbours. We have not curbed individual taste, or refused to allow it to develop. We have not yielded ourselves blindly and implicitly to the so-called laws of fashion!! We have neither required nor winked at adulterations at any time, nor been gratified because we have been able to "dress as a lady upon 15*l.* a year"!

Upon reflection we think it will be found true that the public is largely answerable for the present result. There is no doubt but that the standard of excellence has been lowered in reference to silks, and that adulteration has been as much practised here as in the making of butter

Parisian dressmakers? That which is suggested or dictated becomes in the eyes of some fair leader of society "quite too lovely," and lo! in a moment it is famous. A wild desire to possess that which is the *rage* now seizes upon countless hosts of imitators. There is no cultiva-



WARDROBE IN WALNUT-WOOD. VIENNA EXHIBITION. BY KRAUS AND SON.

or any other of the thousand and one things now offered to the innocent consumer. But whose fault is this? Have we—the public—not yielded without a murmur to the domination of Fashion? Have we not willingly, joyfully, all over the world submitted to what is vaguely called 'the mode,' and which simply means a clique of

tion of individual taste, no discrimination. Our grandmothers were content with one good silk dress where their granddaughters are not satisfied with half a dozen. Those considered the quality of the material, and were enterprising enough to exercise their individual judgment and taste, but these don't care a pin about the

quality, so that it meets the passing need of the present mode; and as to taste, it is summed up in the two words "latest style." If all our daughters and nieces and *belles cousines* and better halves transfer their allegiance from Lyons to Roubaix, and glide and stroll and promenade in "mixed dresses," composed partly of silk and partly of woollen, or other mixed fabric, at the beck of a Parisian coterie, why wonder at the lessened demand for pure silks? If "the dear girls" would only take to wearing silks again, and not be content with anything that was not good and comparatively pure, we should hear less about depression in the trade.

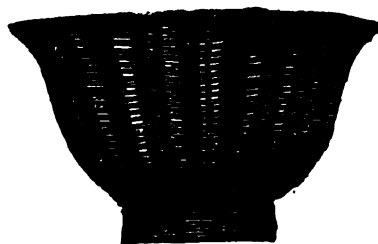
The fact is that we live in an age of "shoddy," and are content with the appearances of things. We have no technical education, no culture in relation to dress, and we are the mere victims of a passion which permeates all classes of society. From rank to rank, from boudoir to scullery, from Lady Ask-Worth to Martha Ann, our general servant, the desire steals and spreads, to seem to others to be what we are not. And in his turn the Lyons maker is the victim of these circumstances. He cannot enter into rivalry of mixed fabrics with his more northern brother of the loom. He must stand or fall by silk alone, but he must also live. If he is to depend for his future subsistence upon the excellence of his produce, his chances of success seem poor indeed. He is but the instrument of a too credulous public; and when we talk largely about adulteration, especially in an article like silk, of which the adulteration is so subtle, we should also remember that these are the days of shoddy-worship and subjection of individual taste—of slavery to fashion and base imitation—of sham jewellery and paste diamonds—of false hair and golden fluids—of rickety houses and veneered furniture—of sanded sugars and cheap claret, and that we must despair of getting back to primitive ideas about the standard of excellence in anything until we begin to show some signs of reform in ourselves.

Lyons still maintains its high rank among the manufacturing centres of the world. It contains all the elements necessary to the composition of a successful community. It has unlimited capital—highly developed inventive faculties—men of enterprise, talents, experience, and artistic skill, and an intense belief in its own ultimate success. The present cloud of distress is but a passing one. Its edge, rugged and dark indeed, is now visible above the horizon, and amid the muttered thunders of threatened political convulsions the philosophical observer sees the calm and prosperous future that lies beyond.

By the superficial indeed, consequences are claimed as causes, and so we have a jargon in which M. Ordinaire and M. Pouyer-Quertier—Eastern questions and Western political complications—want of native enterprise and failure of local inventive faculty—depreciated quality of silk and gigantic systems of adulteration—failure of silk crops and effect of frosts on mulberry trees—are with a ludicrous ignorance commingled, and the tangled mass

is thrown at the feet of the bewildered inquirer as the answer to all his questions. One would think also that the absurd notions respecting trade in the seventeenth and eighteenth centuries were about to be revived. For, ridiculous as it may appear, one of the remedies proposed for the relief of the commercial crisis at Lyons was that the Government should legislate respecting it, and it is a fact that they gave an order for half a million francs worth of silk stuffs for office decoration, hoping to alleviate the distress—the result being that for two months one hundred looms out of sixteen or seventeen thousand were at work. Government intervention is always useless. As Mr. Buckle in his 'History of Civilisation' says, "Every European Government which has legislated respecting trade has acted as if its main object were to suppress the trade and ruin the trader. Instead of leaving the national industry to take its own course, it has been troubled by an interminable series of regulations, all intended for its good, and all inflicting serious harm." No! Burke in England and Voltaire in France—the first historian who advocated free-trade principles—are equally strong in their assertions that such methods of bolstering are factitious and abortive, and they were the originators of the idea which was long afterwards formulated by Mr. Cobden. They were also amongst the first to acknowledge that the interference of legislators is one of the greatest obstructions to the development of commerce, and that no legislation can stimulate its natural activity or inactivity.

A hearty contempt for shoddy, a stern practical protest against the Autocracy of Fashion, and a keener appreciation of real worth, would do more to help the Lyons weaver than all the entertainments that leaders of Parisian society may give in his behalf, all the suggestions of well-meaning but unphilosophical legislators, and all the contributions that have been poured into his lap, even if multiplied a thousand-fold. When matrons and maidens revert to the simple tastes of the past, and, asking for good old-fashioned pure silks, will reject with well-merited scorn all cheap and nasty products of the loom, we shall have a glorious revival of the Lyons trade, the School of Arts will send out its trained students again—a new stimulus be given to inventors and designers, and the click of myriad shuttles will be heard from morning to night in natural response to the unchangeable laws of demand and supply.





DESIGNED BY GEOFFROY AND CO., OF GIEN.

NAVAL EDUCATION.

MUCH attention has lately been drawn in Parliament and elsewhere to the position in the Navy of those officers whose duties demand the more complete study of applied science, and it has been shown that, although the amount of scientific knowledge necessary for the satisfactory management of the costly and complicated machinery of our modern war-vessels, is at least equal to, if not greater than, that necessary for the navigation of the vessels and the fighting of their guns, yet the system of technical education which is at present adopted by the Admiralty has within itself many elements of weakness and imperfection.

Looking back to the days of Nelson, St. Vincent, or Collingwood, we note how frequently the issues of naval contests were decided by the bull-dog qualities of the British seaman, and, allowing that there was much scope for manœuvre, and the display of strategic ability on the part of the officers, it will not, we think, be denied that the latter qualities proceeded rather from inherent genius, cultivated by actual practice at sea, than from any abstract study of science apart from the tuition of the quarter-deck. Indeed, the custom which formerly existed of devoting the duty of navigating the ship exclusively to a class of subordinate officers, apart from the commander and executive or fighting officers, had a strong tendency to discourage in the latter the cultivation of even that amount of scientific knowledge which the ordinary navigation of the ship would require. Of late years

these conditions have been completely overturned; the war-vessel of the present day is a machine whose complicated structure renders high scientific attainment as necessary among the officers who will bring her into action, as among the constructors who design and build her. In the gunnery department alone, the amount of scientific refinement lately introduced is perhaps the most striking. Cannon rudely formed of one solid mass of cast-iron, weighing some 5 tons, mounted upon wooden carriages, held to the ship's side by hempen ropes, and loaded, pointed, and fired by the brutal application of the muscular force of a dozen men, were the weapons with which our sea battles were formerly won. Now, we have guns forged of wrought-iron in various sections, and fitted together with all the nicety of mechanical skill; guns which, attaining a weight of 81 tons without the iron carriage or other fittings, are loaded, pointed, fired, and altogether controlled by machinery so powerful and yet so delicate that, while it moves weights measured by hundreds of tons, it may be controlled by the strength of a child's hand—guns which fired by electricity concentrate in a single instant of time the whole force of the vessel's broadside. Mr. E. J. Reed, our greatest living authority on Naval Construction, says in a recent letter to the *Times*: "Every war-vessel is now a steamer, and some of our most powerful and valuable ships have not a sail upon them; but on the contrary are huge engines of war, animated and put into activity in every part by steam, and steam alone. The main propelling engines are worked by steam, a separate steam-engine starts and stops them; steam ventilates the monster; steam weighs the anchor; steam steers her; steam pumps her out if she leaks; steam loads the gun; steam trains it; steam

elevates or depresses it. The ship is a steam being." To all impartial minds it must be evident that, for the issue of naval contests, and for the maintenance of her maritime supremacy, this country is dependent in the very highest degree upon the trained scientific skill of her naval officers; and when we speak of naval officers we include those whose duty it is to design and build the vessel, and to maintain her structural integrity when at sea, for upon the education and fitness for duty of this class the efficiency of the Navy depends to quite as great an extent as upon the fitness of that branch of the service known as the executive.

If the value of Naval Education is so great and national, it is hard to realise that such meagre efforts have been made by successive Governments to supply the means necessary for the proper education of naval officers. This periodical is established for no party purpose, and it is no part of our intention to attack the acts of any Administration because of its political principles, but, where we see a national want so inefficiently and so im-

perfectly supplied, we will not hesitate to call attention to the fact, no matter at whose door the blame should lie. And this question of Naval Education has been neglected—neglected too long for the welfare of the country; and the purpose of our articles under this heading is to point out wherein the defects have existed in the past, to consider what is now being done, and to suggest what in our opinion may be most advantageously done in the future. Nor, when speaking of Naval Education, should it be supposed that the importance of the subject is confined to the Royal Navy; the Mercantile Navy is too extensive, and the proper education of its officers is too closely related to the national welfare to be worthy of only a passing reference; and indeed it may be that a more close union of the Royal and Mercantile Marine in respect to education and interchangeability of duties, would solve many of the difficulties which beset the path of our naval administrators, and reduce, to an important extent, the immense annual outlay upon the war navy.

THE CONSERVATOIRE DES ARTS ET MÉTIERS.

ONLY to speak of the above establishment in a way really worthy of the subject would take up more space than the columns of 'Industrial Art' could well afford. It is moreover questionable whether a lengthy dissertation would convey a better idea of what the place really is than would a cursory glance over the building during a sharp walk through its labyrinthine galleries, for the walk must indeed be sharp if you wish to see enough to obtain even a vague conception of the true nature of an institution known to the world as the *Conservatoire des Arts et Métiers*.

In guide-book style it may be described as located within the precinct of the ancient abbey, or rather priory, of Saint-Martin-des-Champs, which in 1799 was affected to its use. The buildings have since been substantially repaired and considerably added to. The place, doubtless on reliable authority, is said to contain the richest collection known of objects of every kind in relation to what its name imports—Conservatory of Arts and Trades—supplemented by numerous laboratories for chemical and physical experiments, and a library, which, although said to be somewhat poor, so far at least as fresh acquisitions are concerned, contains nevertheless close upon two hundred thousand volumes. When in addition to the magnificent material display within its walls we are told that lectures are gratuitously given

throughout the year—save in holiday time—to all who wish to attend them, the *modus operandi* will be, to some extent, foreshadowed.

The collections may appear to be rather promiscuously classified—not, of course, in the catalogue—but so far as tracing them through the different galleries goes. They are grouped as under:—Descriptive Geometry and Geometric Design; Metallurgy; Hydraulic Machines; Calculating Machines; Astronomy; Chronometry; Construction, including building in different materials; Dynamometers; tools of every kind; Lithography, Printing, in its various branches, &c., Agriculture, Weights and Measures, Locomotion, Warming and Lighting; Ceramic and Glass Ware; Physics, including heat, light, magnetism, electricity, optics, meteorology, telegraphy, &c.; Manufacture of sugar, oil, &c.; Chemical Products; Textile fabrics and process of dyeing and printing the same.

A staff of fifty-nine officials suffices for the management of the whole, and consists of one director, one sub-director, one secretary, one treasurer, two clerks, fourteen professors, twelve assistants, six laboratory boys, one librarian with one assistant, one keeper of designs and patents with one assistant, one curator, one sub-curator, and fourteen assistants in charge of the collections.

A superficial glance over the exhibits is all that can be expected at one visit, but it will be sufficient to show that the place is not a simple museum of curiosities; practical people go there to add to their knowledge, tyros to gain experience, and the whole has more the appearance of a multifarious commercial bazaar than anything else we could suggest in comparison. It is,

in fact, an *olla podrida* of all such objects as have proved useful to mankind, and their progress towards perfection will be easily traced by a careful observer.

As we proceed through the rooms we catch sight of such things as electric, pneumatic, microscopic, hydrographic, and sundry other scientific apparatus, too numerous to mention, together with barometers, thermometers, dynamometers, &c., which for those who can spare the time cannot fail to captivate their attention for hours together. The sciences of astronomy, geology, mineralogy, chemistry, horography, &c., are all represented here and there by means of diagrams and instruments of precision. Arithmetic and mathematics hold conspicuous places, and many of the calculating



and logarithmic machines are of English make. All mechanical powers are here shown in a most practical manner, from those which are borrowed from the elements to such as owe their action to human or animal labour—from the wind, steam, or water mill, to the builder's jack, the spit, and other similar contrivances.

There are diminutive specimens of many of the steam-engines in present use in the navy, models of ships from a ninety-two gun frigate of the old school to the present ironclads; miniature workshops and factories of almost every description, furnished with Liliputian tools of most delicate make and accurate proportion. There are bridges, aqueducts, viaducts, all models of the larger constructions of the kind, many of which are in Great Britain or its possessions. Agricultural implements and

farm-yard stock are not wanting, some of which, the waggons, for instance, are taken from English models.

But where we noticed the largest gathering at one time was in the hall on the ground-floor, where the machinery was in motion. Here is a splendid display of hydraulic power in the shape of breast-wheels, undershot and overshot wheels, the Archimedes screw, &c.; and the sight of the water as it was being splashed about was quite refreshing. (The models of windmills for corn-grinding or water-raising purposes are in an upper gallery, and, of course, stationary.) In this same hall we noticed a full-sized patent fire-engine of Shand and Mason's. In fact, throughout the whole of our stay in the Conservatory we were struck by the number of



ÆSCULAPIUS. FROM THE BRITISH MUSEUM.

exhibits of English origin; and this reminds us that on our way to catch a glimpse of the laboratories and the library, we noticed not a few packages, some of rather large dimension, the labels on each of which conveyed in English that they must be handled with care, and that they were forwarded from the South Kensington Museum to "M. Trélat, Membre de l'Institut, Conservatoire des Arts et Métiers, rue Saint-Martin, Paris." No doubt, as the acquaintanceship grows closer still, as it is bound to do, between the two institutions, the interchange of such packages, whether in the shape of gifts or loans, will become more frequent, to the great benefit of all concerned.

Many of the objects on view have been presented to the Museum by private individuals and industrial firms, while others were purchased at different national and international exhibitions, at public and private sales, and elsewhere. From these manifold sources the collection has swollen to its present magnitude; it contains, however, nothing but what is absolutely indispensable to carry out the objects in view, and on that score it may be said to be the most practical, and perhaps the richest, of its kind throughout the world.

We have as much as hinted that no pen-and-ink description can furnish an adequate idea of what the Conservatoire des Arts et Métiers, in reference to its scope, and the work it is called upon to perform, really

is. M. Paul Huguët has prefixed to the catalogue a short account of its early history, and of the several successive stages it has gone through before reaching its actual development. This gentleman informs us that the philosopher Descartes is supposed to have been the first to think of gratuitously bringing the study of physical science within reach of the million, but his idea was not carried out in his time. Vaucanson, the famous automaton maker, towards the year 1775, commenced gathering together a number of machines and other implements, and thus formed a collection for the purpose of educating the working classes in such matters as might prove useful to them in their several callings by adding to their skill while cultivating their intelligence. This collection he left at his death to the French Government, by whom it was thankfully accepted, and the whole was lodged at the Hôtel de Mortagne, under the charge of a keeper. It was then decided that every invention which had proved worthy of a national reward should be added to the collection; thus in a very few years—that is to say, towards the end of the last century—no less than close upon five hundred new models were obtained. It is generally believed that this nucleus led to the formation of the Conservatoire; at any rate, it was turned, in 1795, into a public depot—we might almost say repository—for machines, models, tools, drawings, books, &c., whose use would be explained by special professors to those who came to them for information; and about the same time eight hundred objects of art, collected for preservation, were added to the Vaucanson collection by decision of the Commission Temporaire des Arts. It was not, however, until four years later that the present building was selected for its reception, and this has been gradually added to as the requirements for space went on increasing, until it became the school *par excellence* to which diligent and studious artisans are wont to repair for improvement in mental and manual work in nearly every branch of industry.

Two years after the Restoration a Conseil d'Amélioration et de Perfectionnement was formed, partly to consist of the heads of departments of the Conservatoire, and partly of men actually engaged in industrial pursuits, who were to supply practical information when needed.

Towards the close of the year 1819 it was decided that the Conservatoire should not only be an exhibition where questions might be put and answers returned as to the merits and working of this and that apparatus, but a regular institute where lectures should be given and regular courses of instruction gone through. Chairs were created and their number subsequently added to as time went on, the last, and one of the greatest importance, that of Chimie Agricole et Analyse, being inaugurated in December 1853. The number of chairs amounts at present to eleven, and that of the professors to fourteen. The Conservatoire des Arts et Métiers is therefore and essentially a national institution subsidised by the State, and any one seeking for informa-

tion in respect of scientific principles as applied to industry can select his subject and his teacher from the following list:—

SUBJECTS.	PROFESSORS.
Geometry applied to the Arts	Colonel Laussedot.
Descriptive Geometry	M. de la Gournerie.
Mechanics applied to the Arts	M. Tresca.
Civil Constructions	M. E. Becquerel.
General Chemistry in its relations to Industry	M. E. Péligot.
Industrial Chemistry	M. A. Girard.
Chemistry applied to Dyeing, Pottery, and Glass	M. de Luynes.
Chemical Analysis	M. Boussingault.
Agriculture	M. Moll.
Agricultural Works and Rural Engineering	M. Hervé Mangon.
Spinning and Weaving	M. Alcan.
Political Economy and Industrial Legislation	M. Wolowski.
Industrial Statistical Economy	M. J. Burat.

Each of the above professors, with the exception of those for geometry, has the use of a private laboratory and an assistant, with occasionally the services of a boy. Every apparatus used is supplied by and belongs to the establishment. The largest of the lecture amphitheatres, of which there are three, will contain seven hundred persons, the next in size three hundred, and the smallest two hundred.

The greatest attention has been paid to ventilation, and the current, coming as it does from above, carries any fume from the lecture-table downwards, thus preventing its ascension among the audience. The lectures are free to all comers, irrespective of sex or social position, and they take place some at 7.30 and others at 8.45 P.M. On an average the number of attendants throughout the year may be computed at 250,000. The exhibiting rooms are never open at night; in fact, no lighting apparatus for the purpose has ever been provided. People do not, as a rule, go there to while away an idle hour, but to gather information, and it is their own fault if they do not leave it somewhat wiser than when they went in.

We shall occasionally have to revert to this subject, for the sake of keeping our readers *au courant* of the doings in that most exemplary establishment.



ALBRECHT DÜRER'S CASKET.

RETROSPECTIVE NOTES.

THE disciples of the late Joseph Hume tread very closely on the heels of their master and exemplar in their zeal for husbanding the national resources, but they lack his discrimination in the items of expenditure which they single out for attack. Take, for instance, the recent discussion on the Civil Service Estimates. Mr. Dillwyn moved the reduction of the vote of 12,664*l.* for the Science and Art Department buildings by 5000*l.* For why? Because, forsooth, that sum was to be devoted to the erection of an Art Library, and of a façade on the south side of the South Kensington Museum. Now the work was undertaken at the urgent solicitation of the party to which the hon. member for Swansea belongs, and it is being prosecuted gradually by the two First Commissioners of Works who have been in office since. As Mr. Förster, the author of the Education Act pertinently observed, the Art Library was a necessity; while it is only too true what Lord Sandon said, that a great part of it was in such a state as to endanger the safety of the collection. The Vice-President of the Council significantly added, that the House having voted the sum for commencing the work (so important not only to artists but to working-men) would hardly now refuse what was required for its continuance. Neither did it, for on a division Mr. Dillwyn's obstructive resolution was defeated by a majority of fifty-eight. Really our senators ought to know better and behave more liberally.

THE Working Men's College in Blackfriars Road cannot boast the *prestige* of the better known kindred institution founded by the lamented Professor Maurice, and since his death presided over by Mr. Thomas Hughes, yet it has been doing good service for the last nine years. At its re-opening this session, we are glad to see that among the new classes are technical classes for carpenters and bricklayers; elementary chemistry, modelling, and mathematics; and preparatory training for the Civil Service.

No one who appreciates the genius of "The Oxford Undergraduate," who knows the impetus he has given to art, and the interest he has always taken in the welfare of artisans, can fail to be touched by anything in his personal history. Into his private affairs we should not have dreamt of prying, but he has drawn the curtain himself. In a letter to the St. George's Company, the museum of which is at Sheffield, Mr. Ruskin says he will invest 1200*l.* in purchasing an estate of thirteen acres near Sheffield, whereupon the workmen may spend their leisure. His father bequeathed him 120,000*l.*, and his mother 37,000*l.* He began by giving his poorer relatives 17,000*l.*, sold the pictures at a loss, assisted a young relative in business at a cost of 15,000*l.*, spent 15,000*l.* on stables and harness, has given 14,000*l.* to St. George's,

and has besides spent 70,000*l.* in sundry ways. This now leaves him 54,000*l.*, which he will reduce by giving the Marylebone property to the St. George's Company, the Herne Hill property to his cousin, and will then invest the balance of 12,000*l.*, and he says, Live or die on the interest." Comment on such unselfishness were superfluous.

SOUTH London is to have an association for the advancement of science, art, and literature. With the active co-operation of such gentlemen as Mr. Dresser Rogers and Dr. Lemprière, and a life-membership already exceeding a hundred, the society should be a success.



NARCISSUS. FROM NAPLES MUSEUM.

THE Royal Aquarium, Westminster, has lately been showing renewed symptoms of vitality, and is rapidly becoming one of the most popular places of mingled amusement and instruction in the metropolis. Among the fresh attractions has been opened an International Maritime and Piscatorial Exhibition. It consists of exhibits of stuffed fish by Government or societies, clubs, and private individuals; coloured casts of fish; models and apparatus of Taxidermists; all the apparatus of pisciculture; designs of public and private aquaria: angler's tackle; models of steam and sailing vessels, yachts, boats used in sea-fishing, life-boats, &c. The novelty as well as the utility of this project has ensured it such a

large amount of patronage as to reward the energy of Mr. W. W. Robertson, the superintending manager, by whom it has been organised. To all appearance this may now be enrolled among our permanent annual "lions."

MANCHESTER, more than most provincial towns, has made wonderful strides of late years in architectural improvement. Her Assize Courts, Exchange, and Town Hall, would do honour to any community. As a great commercial emporium, and hive of industry, we need not be surprised to hear that the school of art opened forty years ago should have outgrown the requirements of other days. A new building is to be erected in Cavendish Street, to afford additional accommodation, and the 10,000*l.*, the purchase-money of the site, has already been sub-



DESIGNED AT THE LAMBETH SCHOOLS.

scribed. Other 15,000*l.* is needed for the structure itself, which will no doubt be easily raised in a city of so much public spirit, especially when it is known that a permanent Gallery of Art is to be formed under the same roof. The scheme was launched at a meeting in the Free Trade Hall, under the fostering care of the Marquis of Huntly, Sir Henry Cole, C.B., Mr. Birley, M.P., Mr. Leslie, R.A., and other influential auspices—the Earl of Derby contributing 500*l.* to the funds.

It was a very judicious step on the part of our government when they instructed their diplomatic servants throughout Europe (who so often have so little to do) to report on the encouragement of the Fine Arts in the countries to which they were accredited. The results just published are thus summarised:—Baden gives 5000*l.* a year in aid of art. Copenhagen has a Fine Art Academy, with many galleries, professors, and students, at home and abroad, at the State expense. The Academy has

capital to the amount of about 13,000*l.*, and a yearly subsidy from the Government of 2800*l.*—in addition to the fees of 165 pupils, while the art collections of the Royal Palaces cost the nation 766*l.* per annum. In Austria, the chief point to note is that drawing is taught in every national school, as an indispensable branch of elementary education. Hence the Austrian people are early indoctrinated with a taste for the fine arts. Würtemberg spends large sums over her art schools; but this kingdom is also of a very practical turn, and supports numerous technical schools and colleges where workmen are trained in the æsthetic and scientific principles of their trades. Bavaria devotes 29,000*l.* per annum in aid of art, in addition to the lavish sum which King Max. II. and other monarchs spent in creating and stocking the museums and galleries of Munich and other cities. Greece is overawed by the grandeur of its past; but is now reviving to a sense of its duty. Holland has good art galleries, but though it has produced great painters, yet now-a-days it does not seem to spend so much money in developing art as in preserving what it has, and in erecting scientific museums. In Switzerland the Federal Government does not concern itself with art, this being left to the Cantons. Russia has schools of art at Moscow and St. Petersburg, but, at present at least, "villainous saltpetre" and its connections absorb too much coin for any great sum to be devoted to the encouragement of art. Prussia is, however, ahead of most of Europe in the sums it devotes to artistic objects, such as galleries, museums, art schools, the drama, music, and science. The budget set aside for these purposes, in 1876, 5,480,984 marks, which may be reckoned at one shilling each. France, and the other countries not mentioned, have not been reported upon. But such details as we have given should be an incentive for prosecuting the good work at home. While so much is being done for art, science is also bestirring itself on the Continent. We just learn from Pesth that our Hungarian friends are busy organising an expedition to be despatched next autumn to Central Asia, for the purpose of studying the mineralogy and botany of the unexplored parts of that region. Count Bela Szecheny is at the head of the enterprise.

THE best Exhibition ever held in Italy was opened on the 9th of April at Naples, by the King, the Crown Prince, and three of the Ministers of State. It comprises, an esteemed correspondent on the spot informs us, all the different branches of industrial art—carved and inlaid wood, cameos, worked tortoise-shell, lava, coral, rich stuffs, lace, &c. Several of the most distinguished Neapolitans have enriched the exhibition with contributions from their private collections of antiquities. There is also a splendid display of the Capo di Monte porcelain and biscuits, amounting to two thousand different types; while the *codici*, illuminated books of the middle ages, are well represented, besides specimens of the most remarkable works relating to art lately published. But what will most strike English visitors is the Grotto of Bethlehem,

with a great number of figures by S. Martino, and artistically arranged by the celebrated painter Filippo Palizzi.

In this connection it may be noted that an appeal is being made under the auspices of Sir Rutherford Alcock, Mr. Russell Gurney, Captain Douglas Galton, Dr. Max Schlesinger, and other influential gentlemen, for funds to make an addition to the model schools in the Ex-Collegio Medico, at Naples, to which the Government annually grant 30,000*l.* The modest sum of 3000*l.* is required to open an industrial department of the kind, which, according to Professor Villari, "transforms paupers and vagrants into workmen;" and also a branch for training teachers. Surely it will be forthcoming.

AN English Academy at Rome bids fair to be founded ere long, which will wipe out the disgrace of our being among the few great nations of Europe thus unrepresented in "the eternal city." The advocacy of Mr. Agnew will be appreciated by, and tell upon, all lovers of Art. Meanwhile, probably the best means of attaining the end in view would be by the appointment of a committee composed of artists resident in Rome and non-professional men resident in England, and the appointment of such committee would be the proper work of all subscribers to the fund voting *pro rata* at a meeting empowered to accept proxy votes. The sum needed for the habitat of English Art in Rome, including residence for a director, rooms for a due number of students living *in statu pupillari*, proper halls for instruction and study, &c., would be from eight to ten thousand pounds—surely a sum which England need not think twice about.

AMONG provincial items falls to be recorded the recent opening of an Exhibition of ancient and modern tapestry-work, and lace, at Edinburgh. Prominent among those on this side the Tweed who have lent a helping hand to our Scottish neighbours, are the Duke of Westminster, Lady Romilly, and the Royal School of Art Needlework, South Kensington. We hear good accounts of the venture.

HUDDERSFIELD is moving in a good direction. In connection with the local Mechanics' Institution there has been a school of art and design so successful that its extension is now desired by the erection of a building worthy of the growing requirements of the town. A deputation waited upon the Chamber of Commerce, asking its support for a scheme embracing the following objects:—Pattern designing, and its practical application to the loom;—Chemistry, especially as applied to dyeing, scouring, and bleaching;—Machine and building construction;—Mechanical drawing, and its application to machine and building construction;—The principles of mechanics;—Mathematics, especially as applied to mechanical art;—Physics, embracing light, sound, and heat, and magnetism, and electricity;—School of Art, in

connection with the Science and Art Department, South Kensington. It is estimated, that to ensure these objects, without any unnecessary display, not less than 6000*l.* would be required.

TAKING heart of grace from their Japanese neighbours, the Chinese are also aping European institutions, so far at least as scientific apparatus can be accommodated to "Celestial" tastes. A polytechnic at Shanghai is the latest development of the Oriental spread of civilisation. Through the efforts of our late Consul, Mr. Walter Medhurst, and Mr. Fryer, the Honorary Secretary, Pepper's ghost will soon be visible in China. Not only so, but more substantial proofs of the wonders of the Western world will not be wanting which include the kaleidoscope, the chromotrope, the microscope, &c.



FROM MESSRS. DOULTON'S POTTERIES.

A preliminary inspection of the various instruments prior to their being despatched to their destination, has been held, at which the Chinese envoys were present, and with the results of which they expressed their highest satisfaction.

ELSEWHERE we have noticed the efforts being made by the City Guilds to promote technical education. The Shipwrights are not disposed to lag behind in the good work. At their banquet the other evening, the dining-hall was decorated with emblems of the handicraft, acting as reminders that the Company are striving to advance this important industry. Mr. Reed, M.P. (no mean authority), spoke out manfully, expressing his opinion that, in seeking to diffuse that education—and particularly that technical education—which enabled the poor to run an equal race with the classes above them, the various liveries of London would tend to make

permanent, in a higher degree than by any other course, their own immediate interests. He was followed by Mr. Barnaby, C.B., Constructor to the Admiralty, who admitted that England was behind other countries (notably France) in the science of shipbuilding, and hoped that the Shipwrights' Company would become the great referees in matters of proper naval workmanship and design. Mr. Wigram, too, advocated the diffusion of technical education, and trusted that members of Parliament would become impressed with the conviction that questions with reference to the rights and wrongs of shipwrights should be decided by the Shipwrights' Company. These utterances are encouraging, and they are multiplying day by day.

THE Prussian Government, recognising the necessity of extending the system of Technical Education, have deputed the Director of the German Museum of Industry at Berlin, Dr. Grunow, and Privy Councillor Lüders, to proceed to Austria for the purpose of inspecting the recently established Government Schools of Industry and Art; it being the intention of the Minister of

Commerce, Dr. Achenbach, to establish similar schools on the *Austrian* system in Prussia. The two Commissioners visited in the course of the journey the Weaving School at Rumburg, the Glass Industry Schools at Steinschönau and Haida, and the Government Art Industry School at Reichenberg; the Pottery School at Znaim, the Drawing and the Art Industry Schools at Brünn, and others, and expressed themselves in highly satisfactory terms on the organisation of these schools, and the method of instruction; it may be noticed here that these schools are purposely placed in the various centres of special local industries.

THE Art-Industry School of the Austrian Museum for Art and Industry at Vienna, was frequented during the first school-semester, 1876-77, by 263 pupils (among whom were 33 ladies). According to their nationalities there were 134 from Austria and Hungary (75 from Vienna), 12 from the German Empire, two each from Belgium, Switzerland, Denmark, and Russian-Poland; five from Italy, one from Turkey (Bosnia), and one from Japan.



DESIGNED BY F. SCHOENTHALER.

REVIEWS.

A Manual of the Historical Development of Art—Prehistoric, Ancient, Classic, Early Christian: with special reference to Architecture, Sculpture, Printing and Ornamentation. By G. G. ZERFFI, Ph.D., &c. Hardwicke and Bogue, 1876.

WE gather from the pages of this manual that the very woeful falling off everywhere observable in our general knowledge of design in the Industrial Arts during the last twenty years may be distinctly traced to the mode of instruction insisted upon by the Department of Art, almost from the time of its first inception. The writer states that so far have we become severed from the purer and more rational system that formerly obtained in England, the study of Art History at the present time, "which ought to form one of the most

important subjects of our educational system, is entirely neglected in all our educational establishments," and as proof of this ignorance on the part of those to whom was confided this important branch of national training, the writer proceeds to show that the kindred institution for the promotion of Social Science, after twenty years' existence, has only wakened up to discover that "there is such a factor in humanity as Art," and marks the result of our indifference, by quoting from the Department's Reports on the works of the Schools of Art in 1876, in which it is recorded that "our want of workman-like power over the material," contrasting our products with foreign industries of a like character, "is very conspicuous."

The public may naturally inquire how it comes to pass that with unlimited funds at their disposal our national teachers contrived with such fatal success to obliterate whatever traces of art-power their predecessors, Flaxman and Reynolds, had disseminated; or, whilst we were being lulled into so dense a stupor, the workshops of Germany, Switzerland, and Austria were so active in

successfully producing whatever was of acknowledged value in the markets of the world? It is evidently seen that our artistic aspirations have been dwarfed by the exclusive contemplation of these horribly false forms of a debased type of mediæval art, which, owing to want of enlightenment at the period of their adoption by the Department, were mistaken for true 'renaissance' patterns.

In no other way can we account for the preponderance, at the present time, of that amazing heap of costly rubbish which fills the show-rooms of our manufacturers of articles of household decoration; and as a consequence, the dwellings, of all those who have money sufficient to enable them to invest in the purchase of such things.

Let us hope, now that a newer and more rational method of teaching has been adopted at Kensington, our new guides will help us out of the mire into which we had fallen. It was through no fault of his own, that Græculus, made famous by Juvenal, any more than Zerffi, Ph.D., was ready at a moment's notice to become—

"Grammaticus, rhetor, geometres, pictor, aliptes.
Augur, schoenobates, medicus, magus,"

for it was simply the skilful training they both received in early life that enabled them to accept any vocation, no matter how foreign to their tastes or inclination; and by sheer force of steady and laborious reading he could, at the word of command, become even a lecturer on art, with no other materials than a national library like that of the British Museum and its catalogue, by which the treasures contained therein are so readily available to anyone possessed of his industry and culture. The manual shows on every page the genius of the writer, who, caring nothing for the subject in itself, misses of course that enthusiasm which pervades every thought of the true writer on art, but enables him to group and systematise the broad subject he has undertaken to deal with in such a clear and easily followed course that the student following in his steps cannot by any means blunder in the pursuit of his studies, for which this book is a very fair manual. It is to be hoped in the now wiser government of the schools, that inducements—in the shape of permanent professorships—will be held out to tempt a few out of the many of the able and very competent youths receiving instruction, to devote themselves to this much needed vocation, by becoming cultivated exponents of the history and development of Art History.

Industrial Conciliation. By HENRY CROMPTON. London: Henry S. King & Co.

To readers situated in a manufacturing country, whose wealth depends as greatly upon the results of labour as upon mineral produce, the subject of this book must have a surpassing interest. There are few who doubt that the danger of foreign competition has become much greater of late years, and this danger can only be met

by greater oneness of feeling and more harmonious action amongst masters and men. So long as the workman regards his master as the natural enemy of his class, seeking the most labour for the least pay, and so long as the master regards the workman as one caring only for his weekly wage, and without interest in the ultimate success of the trade in which they were together embarked, so long will a sense of insecurity and antagonism prevail: but we look confidently for improvement in the future. Masters and men are now realising the truth that their interests can never be separated, that it is to the consumer they must together



CABINET, FROM "ART IN THE HOUSE."

look for reward, and that it is only the consumer whose interests present the converse to their own.

No better evidence of the growth of this healthy feeling could be found than in the pages of the book before us. As an advocate of the principles of Trades Unionism, and as an appointed referee or umpire between employers and employed, the author may be expected to have a very complete grasp of his subject, and a perusal of his book fully justifies the expectation. Starting with a review of "the industrial situation," a brief chapter gives the reader a very comprehensive summary of the current of change which has agitated the labour market for some years past, and the existing

conditions are thus summed up. "The gradual rise and development of the working classes is then the great social fact underlying the whole industrial question. Individually and collectively the workmen have assumed a new position. The old relationship of masters and men is shattered. Everywhere short contracts, even minute contracts, are superseding the longer periods of hiring. Short service is becoming the rule among domestic servants. The yearly hirings of agricultural labourers have been rudely shaken. It cannot be doubted that the future of the working classes must be moulded by these large facts. Upon these, as a foundation, the employers must seek to reconstitute their authority. Too many of them have shut their eyes and refused to see. Some have actually thought that they could explain such facts by crediting them to the efforts of mischievous agitators. No man could have caused



the minute system of employment. No man could have created an organisation like that of the Amalgamated Society of Engineers. They are the product of vast forces acting through a long period of time; a product which man may indeed learn to modify and regulate, but which he cannot create or destroy. The explanation of such stupendous facts as the work of agitators, is exactly similar to the primitive belief of savages, who attribute the occurrence of eclipses and the appearance of comets to the manipulations of a juggler or a sorcerer."

Chapters II. and III. deal with "Arbitration" and "Conciliation," and the distinction between these two great panaceas for the evils of strikes and lock-outs is well portrayed. It is shown that while arbitration may be a great power it yet falls short in its effect, because it does not sufficiently anticipate and decide points of dispute which have not yet assumed the form of dissension. It

is in the adjustment of such points among the interested parties themselves, by the logic of a sober and wise discussion, that the author thinks the advantage of Boards of Conciliation lies, and he appears to consider that Arbitration, presenting as it does many of the dangers of the hair splitting and manœuvre to be seen in law courts, is a mode of treating disputes which, however good in itself, should be resorted to only after the attempt at internal settlement has failed. For the history of the rise and progress of Boards of Arbitration and Conciliation, composed jointly of masters and men, we must refer our readers to the book itself; that the constitution of these boards is worthy of study is shown by the fact that after many years successful working they are yet able to stipulate that "the condition of the board's action is that the men remain at their work."

The succeeding chapters deal with the industrial condition of the iron, coal, and other trades, and the subject is of so much importance that we will return to it.

Report to the Worshipful Clothworkers' Company of London on the weaving and other technical Schools of the Continent, with general Observations and Suggestions as to the best Mode of extending and improving the Textile Industries Department of the Yorkshire College of Science, Leeds—and of establishing other Technical Schools throughout this Country. By WALTER S. B. McLAREN, M.A. (Smith & McLaren), of Keighley, and JOHN BEAUMONT, Instructor in the Industries Department of the Yorkshire College of Science, Leeds, established and endowed by the Clothworkers' Company. Rivingtons, 1877.

Such is the title of a recently published document intended for general circulation in the centres of the cloth-working industries of Yorkshire and the south-west of England, but, from its wide scope and capability of being adapted to the present need of stimulating every other industry in the kingdom, the Report deserves, and will doubtless attain, a far wider circulation than that contemplated for it by the authors.

Setting out for a six weeks' tour with the intention of confining themselves to a careful examination of some thirty weaving-schools scattered over the Continent in Belgium, Germany, Switzerland, Austria, and France, they were almost from the first convinced that the whole system of secondary and technical education was so closely interwoven with the special subject they had in hand, that any description of the one part without some account of the other would be very imperfect; they therefore lost no opportunity of making themselves acquainted with as many of the details of instruction, and the efficiency and completeness of the teaching practised in the technical schools abroad, as the time at their disposal would admit of. The admirable manner in which their work was done is made evident in every line of their Report. As they proceeded with their inquiry,

they daily became more and more impressed with the conviction of the pressing necessity for the adoption of some such organisation in our own primary, secondary, and technical schools, so that education of as good a quality, without further loss of valuable time, and as nearly as possible assimilated to the continental system of teaching, which bears such unmistakably beneficial results everywhere at the present time, must become general amongst us, if English workmen are to keep pace with the rapid strides of knowledge amongst the continental industrial classes.

Nor have the authors neglected to notice and record in fair detail, the way in which technical education for girls is provided for in Belgium and Germany. Knowing the interest the clothworkers have for many years taken in the higher education of women, they inspected the schools, wherever they met with them, where females "can obtain technical instruction in many trades, and in other means of supporting themselves in comfort." The writers express as their opinion, that after well weighing their experiences in regard to this no less important portion of their inquiry, how much it is to be regretted that similar schools of design do not exist amongst us, where there exist so many proofs that girls possessed of the natural ability and the taste to become designers, through want of technical instruction alone are debarred from this lucrative occupation, "which at present it is almost impossible for them to obtain." A sad reflection this upon the Department of Science and Art, after all these years of patient endurance on the part of the public, who have been unsparingly mulcted and uncomplainingly taxed for the support of schools of design. The Report goes on to complain, with a justice that is the more severe from the ripe experience of those making the accusation, that "through want of some testimonial" to prove that they have studied in some such school young females are deprived of the inducement for manufacturers to employ them, "for if it is well known that they had such a training as the German girls receive, they could easily obtain remunerative employment in many ways;" and when enumerating the work produced by the girls' school of Munich in particular, they notice artificial flowers, painting on silk from nature, paintings on wood, design for tiles, wall papers, cups, plates, fans and house decorations, also patterns for damask table-cloths and napkins, drawn on point paper, these were marked "executed for Brüne and Lippelt, Manufacturers, Brün." It would appear that the large manufacturers in Austria employ girls in the schools of Munich to design patterns for their goods. The advantage which girls must reap from such a system is incalculable; for, "when they leave the school, they no doubt continue in the employment of those firms for whom they have made patterns previously, and an honourable and lucrative trade is open to them."

Turning again to the question of the technical education of youths in England, the main difficulty respecting the mode of dealing with scholars presenting themselves for a higher education in Technical Colleges arises from

their want of previous education in the rudiments of learning, an obstacle which seems almost insurmountable. Whilst advocating the necessity for scholarships to supply the slender funds needed for the support of students attending the courses of instruction, and even admitting the possibility of abolishing fees altogether, the question remains unsolved, Where are the young men to get sufficient education to enable them to compete for these scholarships? "One would naturally look to those who attend the evening classes of mechanics' institutes, as being most likely to furnish competitors." But the complaint of the managers of these long established institutions is, that the young men attending them cannot learn even elementary science, because they are deficient in the rudiments of education. Ignorant of arithmetic, they cannot study mathematics; unable to write, they make no notes of lectures; and text-books are sealed to youths who are hardly able to read the simplest words. The elementary instruction they receive at school stops at thirteen or fourteen years, and though



TABOURET, BY HAAS, OF VIENNA.

a few children are sent to night schools, the majority are left to keep up their learning or forget it, just as they like. As for middle-class schools, "they are expensive, and often far from satisfactory," say these shrewd Yorkshiremen, who declare before leaving this exceedingly painful subject, that "it is no exaggeration to say, that many of those who leave an ordinary middle-class school have not sufficient education to enable them to enter the Leeds College of Science." This important topic so treated is in strong contrast with the education imparted on the Continent as unfolded in these pages. Contrasting the German with the Swiss system of education, the writers are inclined to bestow more praise upon the latter, as being more thorough. At Winterthur they learned that education until the fifteenth year is compulsory, as in Germany; that from the sixth to the ninth year both sexes are associated in class; at the twelfth year they are moved to secondary schools, where they remain in classes of not more than sixty pupils to each class, when they decide, if boys, to continue a classical

or literary education in the Gymnasium, as such a school is called, where they pursue their studies till they go to the university, or, they continue in the practical or *real* school, until they are draughted into the Polytechnic at Zurich, or go to the Technicum at Winterthur; whilst the girls continue to receive instruction, if they prefer doing so, until their eighteenth year. Thus both sexes are fitted to commence life, the males "with an education superior to that which nine-tenths of young men in England have the means of obtaining."

It is to be hoped that with our School-Board system, and the increased light thrown upon the doings of private educational establishments, and the watchful care of parents as well, the difficulty the governing body of the Yorkshire College of Science complain of will very shortly disappear; but it is evident that something must be done to supplement the teaching imparted at the board schools, in the way of technical education throughout the country. There is no reason to fear, even at this late hour, if only proper steps are taken to secure what is needed for them, that our coming generation of



workmen will have deteriorated through the neglect of those to whom the art and science department of the national education of the country has been confided during the last thirty years.

That the necessity of schools for the technical instruction of the young exists can hardly be denied, and if proof be wanting to illustrate the low ebb to which instruction had fallen in this special branch of industry, not to mention many another we could name, we will quote the facts stated with such clearness by the reporters on continental weaving-schools. For instance, "the objection is often made, that 'if a young man wants to learn weaving let him go to a first-rate mill. He will there see every department of the business in the highest state of efficiency, and managed by skilled men able to teach. He will see the newest patterns, the best machinery, and gain an insight into the general management of the business, which he could not obtain at a school!' There is certainly some truth in this; but the answer is, that the weaving school is not meant to supplant the training

received in the mill, but to supplement it in that particular where the latter fails. The proper management of a mill can only be learned in a mill. The apprentice in a mill will probably see newer patterns than he can see in the weaving school; that is to say, he will see other men designing and arranging new patterns; but will he learn to design and arrange them himself; to calculate the warp and weft required to weave them, and cut the cards or arrange the healds? In a well-managed factory, where everyone has his whole time occupied with his own duties, and where everything goes as it were by clock work, no one has time to teach a learner these things. Even if there was the time, there might not be the desire to teach." Again, "the jealousy of overlookers is often so great, that instead of helping a person who comes to learn, they not unfrequently do much to hinder him. In proof of this may be cited a letter from a manufacturer in the south of Scotland, in which he speaks of the great difficulty of getting overlookers for carding machines. The jealousy of the overlookers is frequently so great, that they prevent, if possible, any one from learning the comparatively simple business of card-setting. The consequence is that the supply of overlookers is small, and their wages rise greatly, so that now it is difficult to obtain a good, or even an indifferent, overlooker." Without following through all the details of this single business of weaving, which it will be readily seen applies with equal force to every other industry conducted on a large scale since the introduction of machinery has become general, we can only stop to point out that, as in other trades conducted under the present system, very few succeed in mastering all the branches of the business they are engaged in. Those who succeed do so with infinite trouble, and after many mistakes; while the great majority only learn to work in one department, and are thus inefficient workmen all their lives. Not to mention the many obvious advantages of the technical school to the workmen reared in such an institution, we need only point to the inestimable gain of the masters, who by a proper course of instruction are enabled to look after their business more thoroughly and to supervise their work, for which they would not otherwise be qualified; and the opportunity such an institution presents for the intending buyer or seller of manufactured goods to acquire an exact knowledge of manufacturing in all its branches, and thereby a correct knowledge of goods. Above all, the Technical College will afford the sons of wealthy owners of many an old-established business the knowledge whereby they may themselves be in a position to take an active part in the control of their workmen, instead of following the course now so much in vogue of employing a manager, who virtually deprives his employer of all power of interference, and renders him the unwitting cause of all the evils which of late years have had the effect of driving our national industries out of the legitimate market into the hands of foreign competitors, ever on the watch to profit by our ignorance, indifference, and incapacity.

Sir William Fairbairn, Bart., F.R.S., LL.D., D.C.L. : the Life of. Partly written by himself: edited and completed by WILLIAM POLE, F.R.S. Longmans, Green & Co., 1877.

When Fairbairn, at fifty years of age, set about the pleasant task of compiling the autobiographical notes out of which Mr. William Pole has constructed his Memoir, the successful mechanical engineer little thought how very valuable was the legacy he was about to bestow upon posterity.

The lessons of unswerving fidelity, energy, and brave endurance, unconsciously recorded in these pages, will, in the future, teach habits of patience and constancy to thousands of toilers into whose hands the book will surely come, wherever the industrial arts are practised, or wherever young men struggling with adverse fortune are to be found.

Of the homely descriptions of the earlier days of Fairbairn, whether as a child, contriving a wheeled cart for his infant brother, as a colliery apprentice, or as a mechanic in search of work, the records of his trials and successes, simple as they are in literary construction, will—to most readers—have a charm of their own, not to be surpassed by the most skilful writers of our best works of fiction.

There is one period of his life—out of the many into which the editor has divided his subject—most worthy of the special attention of all who are in any way interested in the history of the rise and progress of modern European industry, in which Fairbairn's name will ever hold a prominent place as the pioneer who took the most active part in disseminating the knowledge we had attained to in the industrial arts amongst the continental workshops. It was during that short interval between 1824 and 1830, when the industry of all nations was awakening into new life, after the too long protracted wars provoked by Russian aggression had ceased, and the soldiers of Switzerland, Italy, France and Germany at length laying down their weapons, their citizens seeing once more some prospect for the safe investment of what remained of their nearly exhausted capital, determined to emulate English manufacturers, whose goods had at that time almost a monopoly in every market. Amongst those who came to our shores in the first years of the century, Mr. Escher of Zurich was the most practical; for on his return home he constructed a small cotton mill on one of the bastions of the fortifications of his native town. This structure, occupying so prominent a position a little later, during the revolutionary wars, fell alternately into the hands of the French, the Austrians, and the Russians. On one occasion, when the mill and its neighbourhood were occupied by Muscovite troops, it ran the risk of being shelled by the French artillery, and it was only at the urgent request of the owner of the only mill in the republic, that the gallant French General was persuaded to desist: his cannons, however, were so directed that

they made sad havoc of the fortifications on either side, whilst the mill itself escaped almost unscathed.

In 1824, Fairbairn, who had already constructed many similar works in Great Britain, visited the Continent at the request of Mr. Escher, for whom he undertook to reconstruct the Zurich mill. Speaking of this visit, he says: "At the mill there was a great deal to do: for ten days I was employed in surveys of the river, and in making arrangements for the machinery, mill-work, etc., for driving the new and renovating the old mill. This latter was driven by two old wheels, which in certain seasons, when the snow was melting on the Alps, and in winter, when the water was low, were scarcely able to drive the machinery. We had now two mills to drive by the same water, and in order to double the power and render it uniform as well as efficient at all seasons, it was necessary to improve the principle, and enlarge the capacity of the wheels to an extent suitable to that portion of the river to which Mr. Escher was entitled. I had further to con-



FAÇADE OF MONUMENT AT TELMYSSOS.

sider how to obviate the difficulty under which they laboured at the extremes of high and low water, and so to modify the conditions as to furnish a given amount of power at all times when required by the mills. To accomplish these desiderata, I had to cause the water-wheels to rise and fall with the river, and always to retain the immersion of the floats, and the maximum depth of the stream. This was done by suspending each wheel on powerful cast-iron levers, the fulcra of which revolved round the pinion of the main shaft, which worked into the segments of the water-wheel. Nothing could answer better than this arrangement. The wheels were fully equal to their work. They rose and fell with the water in the river, and from that time to this, they have supplied a steady, cheap, and regular power to the mills." Before he returned home he received many orders for machinery, so that for the following three years he was occupied on work intended for the Vosges, Alsace, and other parts of France. At length the time arrived when

"the principle of construction became generally known, and the French were able to construct the improved machinery for themselves." In the meantime Mr. Escher's eldest son, having received mechanical instruction at Fairbairn's works in England, returned to Zurich, where he commenced a large machine establishment, which stood high in the estimation of the Swiss, Italian, and German public. For many years large business transactions were entered into by the two friends, and "the new manufactory turned out steam-boats and engines, of which some are still plying on the Lakes Wallenstadt, Lucerne, and Geneva."

In speaking of the formation of the Zurich Technical University, which is of still more recent date, Mr. Scott Russell says that "its founders clearly foresaw the enormous material benefit which would accrue when coming from the training of their more highly-educated youth to the practical business of life by its means;" points out that the Vice-President of this Institution is Dr. A. Escher; describes him as a statesman of large views and unquestioned patriotism, who may be regarded as, more than any other individual, the founder of that National Institu-



tion. It is evident from this incident alone, out of many another we might quote from the same writer, that the growth of Technical Education on the Continent has been steadily increasing since the elder Escher's first visit to England, in the year 1814. And so rapid has this growth been, that we, in our turn, must now go abroad, in order to observe the best methods of teaching those very industrial arts we were the first to inculcate.

Sir William Fairbairn's Life by Mr. William Pole should occupy a place in the library of every scientific and literary institution of the Empire to which the industrial classes have access.

Notes on Building Construction, arranged to meet the Requirements of the Syllabus of the Science and Art Department of the Committee of Council on Education, South Kensington. Rivingtons: London, Oxford, and Cambridge, 1876.

More than a quarter of a century ago the Board of Trade accepted the responsibility of superintending the Industrial Art Education of Great Britain, wisely setting down amongst the more important subjects included in their syllabus Building Construction, as a branch of art-

education worthy their best attention and sustaining influence.

Forthwith such professors as were at the time available were permanently secured, classes were formed, and a course of lectures inaugurated. In the meantime the manufacturers everywhere eagerly caught up the idea, and those especially interested in the introduction of new building appliances and novel combinations hastened, with commendable liberality, to contribute such specimens of constructive art as they desired to bring into public notice and more general use, placing the finest specimens of their work at the free disposal of the museum authorities, who lost no time in filling the Brompton galleries and passages with these useful objects. In themselves many of these specimens were of no particular interest to the general public, although they manifestly contained—it was hoped—the germs of great improvement, which under careful cultivation would bear fruit at no very distant period.

The hopes of the nation were fairly roused by this new impetus thus given by Government to technical education amongst us, and the British tax-payer—as good-humouredly as might be—was content to wait for the promised harvest. Art students in time presented themselves, on the days appointed, for instruction in the theory and practice of building, and in due time became indoctrinated in the mystery of "Queen posts" and "cavetto mouldings." They learned, also, how to discriminate between "Spanish" and "Flemish bond" at a single glance, and under patient supervision they constructed complicated "dog-legged staircases" on paper, or described in detail the composition and application of "rough cast." As each term drew towards its end, the examination papers were filled up, successful pupils and exultant professors alike congratulated themselves on having fulfilled all that could reasonably be required from them, and it only remained for the compiler of official statistics to announce, in the annual Blue Book presented to Parliament, these tabulated returns for the edification of that portion of the public whose delight it is to ponder over results obtained at South Kensington. When the Committee of Council on Education took over the "department," they saw no valid reason to warrant them in altering the method of teaching, by that time become stereotyped in the schools, and the tendency to rest and be thankful has no stronger an illustration than this, set forth in the very admirably edited and exceedingly well-arranged volumes recently issued by Messrs. Rivingtons. The clear, terse—and at the same time easily expressed—definitions and descriptions, together with the great number of carefully engraved illustrations which abound in each volume, are evidently the outcome of long experience in a very circumscribed area, and on this account alone cannot fail to achieve the object for which they are specially prepared.

Had the building portion of the community consented to follow, during the last twenty-five years, in the well-defined track so strictly systematised in these notes;

had the novel requirements of modern progress blindly submitted to be led in the trammels of conventionalism, these two text-books might undoubtedly have commanded a high place in our esteem; but, looking in any direction, we cannot fail to discover that the teaching contained in these notes has become, if not altogether obsolete, at least too antiquated to serve the purpose for which they are intended.

Bridges of wood or iron, or both these materials in combination, at the present day, and in all parts of the world, stretch over yawning chasms or span the widest rivers. The wide expanse of roof structures for international exhibitions, and the coverings of public buildings everywhere, are illustrations of the modern constructive ability of our architects and engineers. Attention should have been drawn to recently discovered methods of overcoming the tendency of iron in exposed places to rust, and to the many neater and more simple forms of joinery and surface decoration now generally adopted. The greatly improved appliances for sanitation, and, in fact, the newer and obviously more suitable means of building construction grown up during the last quarter of a century have been overlooked, and are altogether ignored. Whilst the origin of many of these improvements can be traced to domestic sources, they are, for the most part, derived from the new experiences of American or continental artificers. To be acquainted with these modifications, demands more activity and intelligence on the part of our public instructors than they seem disposed to accord; but with such examples as the public buildings of the Great Northern Railway Company at St. Pancras, or better still, the Hospital of St. Thomas (near that triumph of engineering skill, the Westminster Bridge), designed, contracted for, and built altogether by foreign workmen, it behoves us to consider well the value of our present system of teaching building construction.

One great defect in these two volumes of 'Building Construction' arises from the too wide range of the compilation; too many trades are dealt with, to the manifest detriment of each. This is mainly owing to the very limited space at the disposal of the compiler. It is obvious, that to be fairly treated, each trade should be represented by its own text books, drawn up by specialists competent to deal with their subjects in detail.

The Practical Gold Worker: or, the Goldsmiths' and Jewellers' Instructor in the Art of Alloying, Melting, Reducing, Colouring, Collecting, and Refining; the Processes of Manipulation, Recovery of Waste, Chemical and Physical Properties of Gold; with a New System of mixing its Alloys, Solders, Enamels, and other useful Rules and Recipes. By GEORGE E. GEE, Jewellers' Manager. London: Crosby Lockwood and Co., 1877.

Here is a little volume (would it were bigger!) brim full of practical information by an author who, from his very wide and very keen experience amongst the Birmingham

gold-workers, has been for some years justly regarded as a sound authority in "certain difficulties of the trade"—difficulties sure to arise, and by no means easy to overcome where no better system of imparting technical instruction is to be found, at the present time, than it is just possible for one to pick up in the workshops of the large manufacturers. In those workshops, since the introduction of gas and complicated machinery for expediting the manufacture of articles *en gros*, the chances of learning the minor details of the craft, by the very nature of the changes we have indicated, are secured with greater difficulty now than formerly, when "wrought" or hand-made jewelry was constructed by the artificer, whose apprentice, ever at his elbow, assisted in every operation, until he became in time as expert as his instructor in practising the mysteries of the craft.

The want of a text-book for every trade, is made more apparent by the appearance of this little volume at the



JEWELLED SOLITAIRE, BY BELLEZZA, OF TURIN.

present time, for it is admitted in the preface that the writer's aim is "to guide the workman and young apprentice, and, as far as possible, to prevent them from experiencing similar perplexities to those he has often been called upon to solve, by pointing out their chief causes and the remedies, as well as to supply some additional information which will, it is hoped, contribute both to their efficiency and advancement; and especially to further the object of that class of practical gold-workers who take an interest in the daily business of their life, to which, perhaps, chance or choice has called them, but who unfortunately may be unable to improve their position from the want of a higher and more comprehensive knowledge of their calling; that such may acquire a knowledge of facts and a set of useful rules with which they have hitherto been unacquainted." With generous aspirations like these, he launches his venture, in whose success he has our heartiest good-wishes—"so that it may become, as it were, a manual of reference and a guide to the jeweller's workshop."

These are the expressions of an eminently practical observer, who has made himself acquainted with the now pressing necessity that some active steps should be taken to meet the requirements of all our craftsmen. The honest expression of an opinion which, during the present year, has sounded in the public ear like a keynote of warning from so many industries, it would be a fatal policy to neglect. Even a cursory examination of the pages of this memoir will satisfy anyone of ordinary intelligence that in order to follow so ancient and so artistic a craft as that of a worker in gold, with success, it is essential that from his youth up the artificer should educate his eye and hand to the utmost; that he should encourage a love of culture and refinement, inseparable from the contemplation of works of artistic merit wrought in costly materials. And since chemistry has ever been associated with the refining, alloying, recovering, colouring, assaying, and precipitation of the precious metals, it behoves the workman who would conduct his



own business, to have a practical experience in this peculiarly fascinating branch of human investigation of Nature's mysteries—not to mention the cultivation of the artistic faculty, by which one learns to discriminate between the types of ornament which belong to each period of the history of decoration; to acquire the power of designing articles composed of pearls or precious stones in combination with suitable settings in gold or silver, requiring delicacy of treatment and exemplary patience and fortitude during the progress of their construction; above all, that he should practise a strict adherence to the rules of duty, and the responsibilities of workmen engaged upon such costly materials, which, however lasting they may be in themselves, are continually being reduced in bulk and weight during the progress of their manufacture, no matter how careful the workman may be. The book is exceedingly instructive, and contains some novel and effectual recipes, notably one for successfully removing—by a simple process—the soft

solder so frequently employed in badly repaired fine gold ornaments. Other suggestions, equally valuable, will insure for the author a ready entrance into every workshop where unaffected intelligence, free from pedantry, is at all times welcome.

INDUSTRIAL ART PUBLICATIONS.

AS the demand for works treating on the first principles of art design is unceasing amongst a people whose taste is cultivated to the utmost, however much their education in other respects is neglected, the supply of art publications issued by the Paris publishers is unceasing. A new issue of a *Grammaire élémentaire du Dessin*, by Ducher and Co., under the able direction of M. L. Car-nesson, promises more copious instruction than its numerous predecessors. This first part is devoted to some eleven lessons in linear design; the information is conveyed in the clearest manner, both in figure and letter-press description, and leaves nothing untouched that may be required by the student who desires minute information at the outset of his professional career.

There are no terms of praise sufficiently adequate to describe our admiration of the work, entitled '*Art Industriel: l'ornement des Tissus*,' issued in parts, which when completed will contain one hundred plates in colours, gold and silver. Each number contains ten plates, each representing several fine examples of fabrics in designs of all periods, and in various costly materials woven and hand-wrought. As the work progresses, the subjects as they are ready for the printer will be presented to the subscriber; the index, which will be arranged with systematic precision, cannot be prepared until the work draws near completion. In the meantime each plate is furnished with a symbol, by which reference to the letter-press description can be easily made by any one seeking for detailed information respecting the history, motive, and purpose of the figured specimen. Such a work will be eagerly scanned by designers of textile fabrics, art needle-women, and others. As the knowledge conveyed in the pages of this work is at present confined to only a few students in the history of ornament, this superb work cannot fail to be appreciated as much by amateurs as in the studios of our manufacturing districts. This work is issued by the publishers, Ducher and Co., Paris, and will be completed in ten parts.

The *Grammaire des Arts Décoratifs* contains a splendid selection of works of art, of a character bearing on the subject dealt with. It is intended to serve as a companion to the previous grammar, and is issued by the same firm.

The *Journal de Peintures* contains very cleverly

executed details of domestic ornamentation in colours, with specimens of various foreign woods, showing their peculiar grain, and coloured in exact imitation of nature; cartouches and panels which serve in many ways as guides in the selection of contrasts of colour, etc. This fine work is issued by V. A. Morel and Co., Paris. The letter-press is devoted to the interests of house-painters and decorators, who find in each issue facts of the last importance to them in all that bears upon their industry.

The third series of '*Architecture privée au XIX^{ème} siècle urbaine et suburbaine*,' is a choice work issued under the direction of the Government architect M. César Daly, and published by Ducher and Co., Paris. Its purpose is to direct attention to artistic decoration for salons, dining-rooms, billiard-rooms, boudoirs, libraries, halls, staircases, etc. The current number contains magnificent designs, on gold backgrounds; the figures and renaissance ornaments drawn to scale are as elegant as they are in good taste and design.

Habitations modernes, another work of noble proportions, issued by the Librairie Générale d'Architectes, and published by V. A. Morel and Co., contains elaborate architectural designs of a high order—either of subjects supplied by works already completed, or designs furnished in response to prizes offered by the profession. A careful rendering of the parts, and clear and explicit diagrams of details, mark this publication, on which no pains are spared to secure it a high place amongst other publications of the kind, to be noticed hereafter.

L'Ameublement and *Le Garde-meuble*, published by Guilmard, whose able services have been secured for the Paris Exhibition of 1878, are two works almost similar in character, the one in its thirtieth year, the other some eight years older; each appears every second month. They give figures and letter-press descriptions of specimens of upholsterer's work in all its branches, devoting much space to chairs and sofas of every period and design. The present issue contains coloured specimens of the quaint furniture of the Henri II. period, which consists of chairs, tables and sofas of the simplest forms of construction, the wood of the framework being concealed with cloth or velvet, terminating with a deep fringe of a colour in strong contrast with the cloth which takes the place of paint or varnish throughout. This style is now much esteemed by persons of taste who can devote a special chamber to some particular period, where every article of furniture and adornment is an exact transcript of the prevailing fashion of the time illustrated.

The draperies and the materials used are of great value as guides to those about to arrange their chambers after the fashion at present in vogue.

The same firm issue a volume of designs, in every case drawn to scale, of domestic furniture, another containing new carpet patterns, and one for ecclesiastical furniture,

containing the modern requirements for altars, pulpits, confessionals, etc., after Greek and Gothic styles of the eleventh and twelfth centuries.

Le Bijou is an artistic review of the jeweller's and goldsmith's art, as at present practised. It is published by Rothschild of Paris; each part of this splendid work contains two large plates, illustrating various fine jewels mounted in settings at present in fashion. Each specimen is printed in brilliant colours, and the effect of the costly gems in their rich setting is greatly heightened by being placed upon a black background. The publisher also supplies a tracing of each article on tissue-paper, and hopes that the service he thus renders will be as much appreciated by the export merchant, anxious to see the most recent novelties issued by the workshops of Paris (the seat of such *articles de luxe*), as by the designer in gold and silver, living at a distance, who, with the materials he finds ready to his hand, or such modifications of them as seem to meet his requirements, can supply his own



COVER DESIGNED BY ERHARD, OF GMÜND (SWABIA).

market with the newest patterns, often sought for, but hitherto difficult to obtain without great difficulty and inconvenience.

A monthly publication, entitled *Nouvelles Annales de la Construction*, is issued under the direction of C. A. Oppermann, contains numerous plates illustrating details of great public works, such as railway construction, harbours, navigable rivers and canals, and the materials used in their construction, whether natural or artificial, with letter-press descriptions. There are besides short notices of official and other documents relating to the work figured in its pages, with records of the meetings of the principal societies of architects and technologists. Its pages are also open to the discussion of tables of calculations, formularies, etc. There are means of communicating ideas through the correspondence column, and the questions relating to details of construction and decoration are copious, whilst the editors' replies are always accepted with marked deference. A series of the same publication contains details of routes of communication, roads, streets,

canals, bridges, tunnels, harbours, and telegraphic communication ; another has special reference to health, food, water supply, sewage, and ventilation of buildings, etc., whilst the interests of employers and workmen are set forth with regard to the requirements of each in fair and dispassionate terms. The first part of this important work was issued in January 1855.

Die Glas-Industrie, by L. Lobmeyer, published by W. Speemann, Stuttgart.—This work, which is a history of the Glass Industry, its present state of development, and statistical record, contains the history of glass in its relation to Art Industry from the oldest times to the end of the eighteenth century by Albert Ilg, Custos of the Imperial Museum at Vienna ; the glass industry of the present time, especially in connection with the Vienna Universal Exhibition of 1873, by L. Lobmeyer ; and statistics of Glass Industry in America, Great Britain, France, Switzerland, Italy, Germany, Austria and Hungary, Russia, etc., by Capt. Boenheim.

J. C. Ackermann's *Gewerbe-Zeitung*, Vienna, published bi-monthly, is a technical organ of general and domestic industry, with occasional artistic supplements.

Under the editorship of Mr. Adolph Schill, architect, an assimilation has recently taken place of the well-known illustrated Art Industry journal, the *Gewerbehalle* (established in 1863), published at Stuttgart, and the equally distinguished publication of a similar character, *Das Kunsthandwerk*, edited by Bruno Bucher and Professor A. Gnauth, formerly published by W. Speemann, of Stuttgart. The latter was one of the most prominent literary publications devoted to Art Industry on the Continent, and its cessation as an independent organ is much to be regretted. It is, however, hoped that by avoiding the defects of the latter in the selection of the objects of the illustrations, which, however, were always drawn and executed with exquisite care, and the shortcomings of the former, the combination of the two journals will result in a publication of a very high order and perfection for the advancement of Industrial Art.

Bronzen aus der Zeit der Italienischen Renaissance, by Valentin Teirich, published by R. v. Waldheim, Vienna, contains original illustrations, and copper plates, as also working details of various kinds of bronze work of the early renaissance, as well as of the high renaissance style, comprising doors, architectural objects, fountains, candelabra, candlesticks, chimney-stands, door-knockers, and other bronze utensils.

Blätter für Kunstgewerbe, by Jos. Storck, architect and Professor of the Art Industry School of the Austrian Museum for Art and Industry at Vienna.—This is a serial published monthly, similar in scope and design to Bucher-Gnauth's *Kunsthandwerk* and Schill's *Gewerbehalle*, containing illustrations of objects of Industrial Art, with letter-press by the most distinguished designers and literati. 6th annual.

Die Kunst im Gewerbe, by Edwin Oppler (Leipzig, G. Knapp).—This periodical, a number of which is published every two months,* contains illustrations of executed works of Industrial Art, such as articles of furniture, decorations, domestic utensils, objects of Art Industry, fountains, tombstones, etc., with original illustrations of objects of Industrial Art of the flourishing time of the middle ages.

Deutsche Renaissance.—A collection of illustrative objects of architecture, decoration and industrial art, original productions, edited by A. Ostwein, director of the Technical School at Gratz. Twelve parts annually ; to be completed in 125 parts, published by E. A. Seemann, Leipzig.

Italienische Renaissance.—Original representations of architectural details, flat surface decorations, plastic ornaments, and articles of industrial art, grouped systematically, published by E. A. Seemann, Leipzig. The first series contains the choir framework of the church San Severino at Naples, by A. W. Cordes and E. Giesenberg. The second, a sketch-book of an architect of the sixteenth century, by E. v. Berlepsch. The third, Castle Stern near Prague, by Ph. Baum and M. Haas.

Von Lübke's *Grundriss der Kunstgeschichte* (Stuttgart, by Ebner and Seubert), which has already reached its seventh edition, is being published in English in America ; translations in English, Danish, and Swedish having previously been published in London, Copenhagen, and Stockholm. The German edition already exceeds 20,000 copies.

Die Griechischen Vasen in ihrem Formen- und Decorationssystem, by Theodor Lau and Professor Dr. Krell, two parts, with twenty-two plates each, published by E. A. Seemann, Leipzig. This work contains an historically arranged series of the most beautiful and most characteristic specimens of the rich collection of vases at Munich.

The representation of the specimens selected, to which the author has devoted years of pains and assiduity, is exact and correct in style, and may be ranked with the very best productions of that kind of the day. The object of the publication is to serve for purposes of Art Industry, and as a means of instruction in Technical Schools, as well as for practice. For this purpose the plates have been so executed, as to show the constructive composition by numerous sections, and minute illustration of the decorative details.

The introduction is written by Dr. H. Brunn, an author of the first rank in Archæology, whilst the explanatory text was contributed by Dr. P. F. Krell, Professor of the History of Art at the Royal Art Industry School at Munich, who has also added an explanation of the tectonic principles.

The chromo-lithographs are by Brückner and Co., of Munich.

* By the Society of Architects and Engineers of Hanover.



DESIGNED BY DRAECHSLER.

NEW INVENTIONS.

A RUSSIAN, named Peretjatko, has made a remarkable invention. He has succeeded in constructing a kind of *land Monitor*. The artillerists sit in completely covered turrets, which are propelled by steam, and from which they can point the guns in any direction against the enemy. The invention has attracted a great deal of attention, and is being subjected at present to a close examination and experiments at St. Petersburg, the results of which are looked forward to with great curiosity and interest in military circles.

XYLOGRAPHY.—Under this name Mr. T. Whitburn has invented a most ingenious process of transferring artistic designs to wood, for the decoration of houses and furniture. The pigments used are applicable to any soft wood. A very solid body of colour is produced, the patterns are clear-cut and exact, there is no blurring, and the only improvement that occurs as desirable is a little more care where the two blocks join. Arabesques, tile patterns, and quaint devices are printed with movable blocks which can be collocated together in infinite variety. The completed series or group forms the ornament of a door-panel, the skirting for a room or a ceiling, a frieze or a border for any purpose, a line of decorations for the wall of a corridor. The method is very suitable for application to furniture, desks, workboxes, in cases where the expense of inlaying is prohibitive. A door can by xylography be decorated in six panels, at the cost of a guinea and a half, in permanent colours with refined and intricate patterns, such as have hitherto been chiefly seen in the tail-pieces of gift-books. Most of the slabs are printed in one colour and by one impression, but tint can be applied over tint in exactly the same manner as in chromo-lithography. The commencement of the process is to draw on wood or on paper, from which the design is transferred to wood. The design is then engraved or reproduced in zinc by a well-known method. An electrotpe cast is taken from the woodcut or zinc plate, and the smooth slabs of wood exhibited are printed from the electrotpe under a regulated pressure, and with pigments especially

prepared. To preserve the material and enrich it the French polisher is called in, or (and this method appears better) the whole of the wood is covered with a fluid enamel which may be applied by an inexperienced person with a brush, and is serviceable for protecting any neighbouring pieces of metal, as well as the wood. The wood can be scrubbed, washed, and even sandpapered without destroying the pattern.

THE SOLAR ENGINE.—The honour of being the first to introduce this engine as a practical motor for industrial purposes belongs to M. Mouchot, a Frenchman, who has designed one, and put it to the practical test of pumping water. His boiler consists of a conical, or funnel-shaped,



EROS. FROM THE VATICAN.

mirror, *i.e.* looking-glass, lining the inside of a large truncated cone, which is built up in sections. This is so mounted that it can be made to follow the sun from morning to evening, and can also be so arranged as to expose its full surface to that heating agent in whatever position he may be during the year. The truncated cone consists of an iron frame, into which twelve silvered glass reflectors slide, so as to form a funnel-shaped basin, about 9 ft. 6 in. in diameter at the top, and about 3 ft. 6 in. at the bottom, which latter is formed of a cast-iron disc, to which the supporting trunnions and the gearing for giving the requisite motions are attached. The boiler is

formed of two concentric bell-shaped copper vessels, firmly attached by an iron ring to the bottom of the cone-shaped mirror. The larger, which is the outer envelope of the boiler, is about $31\frac{1}{2}$ in. high, and the smaller $19\frac{1}{2}$ in., the respective diameters being 11 in. and $8\frac{1}{2}$ in. The interior of the smaller of these bell-shaped vessels is empty, the water being introduced between them, where it forms a cylinder a little more than an inch thick,—about a third of the height between the two envelopes being left as steam space. A glass envelope, also bell-shaped, and $\frac{2}{10}$ ths of an inch thick, incloses the boiler. It is about $32\frac{1}{2}$ in. high, with a diameter of $15\frac{1}{2}$ in., so that there is a dead air space between the inner surface of the glass and the outer shell of the boiler, the latter being blackened, so as more readily to absorb the heat. A steam-pipe and feed-pipe, a water-gauge and a pressure-gauge complete the accessories. A mirror of the dimensions above given has about 45 square feet of reflecting surface, and the rays of the sun striking the sides of the cone are reflected through the glass envelope on to the surface of the boiler at the lower part where the water is situated; here their heat is absorbed, the glass envelope, though permitting their free passage in one direction, preventing their return. In less than a quarter of an hour 33 lbs. of water has by this engine been raised from 212 degrees Fahr. to 307 degrees, which is equivalent to a steam pressure of 60 lbs. above the atmosphere. M. Foucault has recently devised a modification of the solar engine, in which the power is derived from the expansion of ammonia when heated by the rays of the sun. The French Minister of Commerce has taken the new engines under his patronage, and they will be exhibited at work during the Exhibition of 1878. Of the many practical uses to which steam, raised by solar heat alone, may be applied, the most obvious is that for raising water from the numerous irrigation canals that intersect the cultivable soil of the Delta of the Nile. At the present time, owing to want of fuel, steam for this purpose is out of the question, and the husbandman is compelled to adhere to the most primitive appliances to ladle up the water of his canal on to the level of his land, a tedious and expensive process, which has the effect of retarding the cultivation of the greater part of the richest and most productive land directly under the influence of the warmest rays of the Egyptian sun-god.



EXHIBITION OF OBJECTS OF ART AND ART INDUSTRY AT AMSTERDAM.

IN celebration of the twenty-fifth anniversary of the Society for the Promotion of Manufacture and Industry in the Netherlands, an exhibition of objects of art as applied to industry is being held at Amsterdam, and will remain open till August, under the Presidency of his Royal Highness the Prince of Orange, Baron Mackay, President of the Second Chamber of the States-General, and a large Committee of Government officials, manufacturers, and other gentlemen of distinction. The object of the Exhibition is the advancement of Art Industry in Holland, a country formerly distinguished in high and Industrial Art. With the Exhibition will be combined an international competition in the different groups into which the Exhibition has been divided, for which purpose various prizes and premiums have been offered, varying



from one hundred to one thousand florins, besides gold and silver medals, to be competed for by manufacturers and workers in Art Industry from all countries, which prizes and medals will be awarded by an International jury. The principle laid down for the Exhibition has been very happily chosen, and has induced numerous manufacturers and artisans to take part in the competition, the objects being required to be executed according to the conditions of the special programme, and in the case of furniture-decorations, etc., to be supplemented by drawings.

The Exhibition promises to be one of the most interesting which have been held for a long time, and it is greatly to the credit and honour of such a small State as Holland to fall in with the tendencies of the times and to show by actual products the progress the nation has achieved. In connection with this prize system of the Exhibition, the Prussian Government have offered in Group I. three prizes of 170, 340, and 510 marks respectively for the handsomest decoration of a vase with pedestal, and a simple dinner service for twelve persons. These articles are to be executed by the Royal Porcelain Manufactory at Berlin.



NOTES.

MR. C. J. NEWTON, C.B., of the British Museum, has indirectly testified to the extreme value of our national collection at Bloomsbury, in the learned discourse he lately delivered at the Society of Antiquaries, on the subject of the recent discoveries made by Dr. Schliemann, of various articles of very ancient industrial art at Mycenæ, consisting of gold cups, weapons, and other articles of domestic use in silver, bronze, ivory, wood, and earthenware. Every one was naturally at a loss to know to what date such work might be attributed. It only needed a personal inspection of the objects found to enable our own skilled antiquarian to assign them their proper place in the history of human art. The tombs described to Pausanias the historian as the burial places of Agamemnon and his companions, who were murdered by Ægisthus, contained objects that closely resembled similar work found in the tombs of Ialysus, in Rhodes, as well as in some of the other islands of the Mediterranean. With them, and obviously of the same date, were found associated several articles of undoubted Egyptian origin, whose date could be recognised with comparative certainty, and the conclusion arrived at is, that these Mycenæ remains were deposited about eleven centuries B.C., a date sufficiently remote to satisfy all students of history, to whom the very name of Troy has the deepest interest. We are enabled by the favour of Mr. Seemann, of Leipzig, to give with this notice a careful outline of the Lions' Gate, now grown familiar to the public through the discourses of Dr. Schliemann and others, recently delivered.

Of the numerous galleries of fine arts now on view in London, that of Messrs. Howell and James is certainly the most elegant. The works of art here shown are selected with great care, and are displayed with the nicest regard to their purpose when removed to the dwelling of the buyer. The chambers are not over-crowded with specimens of elegant furniture, in the newest styles; these shown are made to carry

fine fictile ware, of various designs. A large proportion comes from the art workshops of Messrs. Doulton, of the Lambeth Potteries.

Some of these works struck us as being of peculiar interest. It is our intention to give further illustrations of these elegant designs. As they become better known they will tend to revive the love of good art amongst us, which had nearly gone out of late years for want of properly trained artificers, rather than from any paucity of buyers of good objects of refined art.

DURING the fourteenth and fifteenth centuries the Paris guilds seem to have been unusually active, if we are to judge from the frequent occurrence of small leaden tokens of that period found in the mud of the Seine and in removing the soil of the older foundations to make room for new buildings.

Although the emblems displayed on these tokens are considered as the "saints patrons" of the various guilds, they seem rather to refer to the day on which their annual trade festival was held, for the saint seemingly the most appropriate to the craft is often rejected to give place to one whose festival falls at a more agreeable season; thus the little group of saints whose names are identified with the spring and early summer days are most patronised.

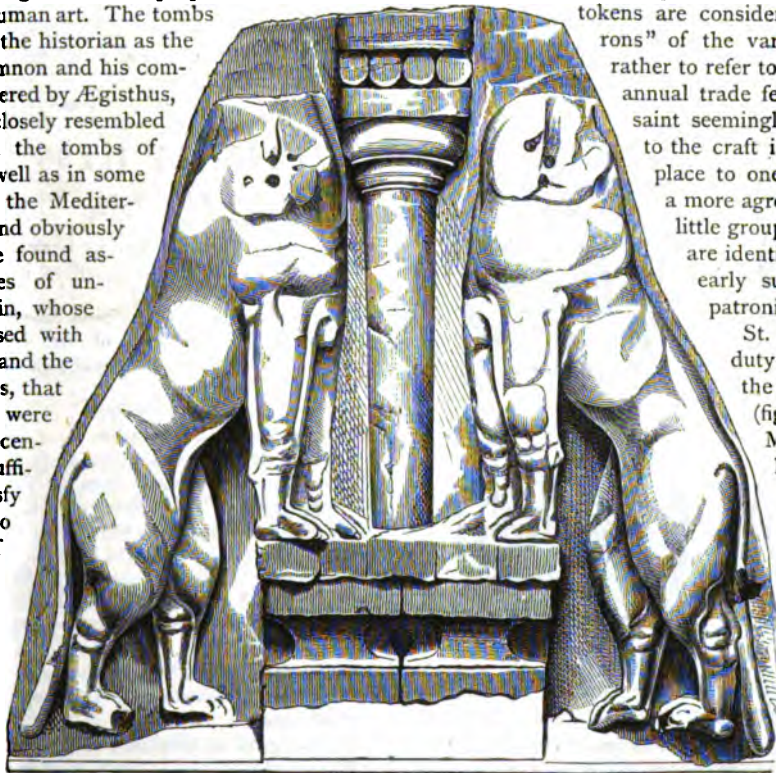
St. John the Baptist does duty for several. We figure the medal of the Hatters (fig. 1), the shield of St. Michael, in this case, having four besants and a cross cantonnée.

The once wealthy guild of Tennis Court Keepers, or Paulmiers, adopted St. Barbe, whose father's decapitation and her own imprisonment in a tower, are figured on the medal.

The Fruiterers adopted St. Christopher and St. Leo-

nard (who broke the chains of captives), fig. 3. St. Maturin and St. Fiacre were adopted by the Tin-smiths.

St. Nicholas (fig. 5) was selected by the Wine-merchants and others; the children in the salt tub are not so easily identified with the trade as is the ship, bearing wine, perhaps, from abroad. St. Nicholas, friend to sailors, is shown standing on the poop. These medals are roughly executed, but carry sufficient expression on their surface to merit their introduction here, at a time when the poor condition of our own



LIONS' GATE AT MYCENÆ.

coin portraiture has just undergone severe criticism at the hands of the deputy master of the Mint, a subject of especial interest to students in design.

Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



COMBINATIONS to resist oppression fatal to industrial industries are as old as the hills, and if the recently-formed "Shipwrights' Society" is successful in accomplishing the objects for which it is incorporated, we may expect to see other active revivals of the same kind in other trades, guilds, and companies.

THE Dresden workmen employed in the reproduction of cheap imitations of such tasteless objects of English design as the gaudily-painted birds, pug-dogs, and other monsters, as large as life, in porcelain or stoneware, exclaim against our growing tendency towards vulgar and debased art; fearing that the influence may communicate itself to the continental schools, to the manifest injury of the good taste they have been so sedulously cultivating heretofore.

At the *Sèvres* porcelain works, the sale of white undecorated specimens is interdicted, unless the marks under the glaze are ground out beforehand. This is done with a view to prevent the growth of the trade in spurious imitations elsewhere.

THE Flaxman Gallery, University College, Gower Street, is open on Saturdays free to the public.

BERNARD PALISSY, the illustrious Huguenot potter, is to have a statue erected in his honour at Boulogne-sur-Seine.

THE Byron Memorial Committee have held their second exhibition of works by sculptors, who accepted the principle of open competition as a test for their ability to undertake so important a work. As "Boatswain," the favourite dog of the poet, seems to share the honour intended for his master, care must be taken that the faithful companion does not usurp the honour intended for the noble genius. Evidently our open-air monumental art needs more care in the study of its first principles than has hitherto been bestowed upon the subject by British sculptors.

ARRANGEMENTS have been made by the Austrian Government to place the Museum of Art and Industry in Vienna, from October to December, at the disposal of intending exhibitors to the Paris Exhibition of 1878. It was owing to some such rational arrangement of this kind that Austria made so successful a display, and so prosperous a commercial venture, in the goods selected and forwarded to Philadelphia last year.

THE exhibition of works of art to illustrate the manufactures of Derbyshire, under the immediate patronage of the Dukes of Devonshire and Rutland, will remain open to the public for a few months at the new School of Arts, Derby.

LIST OF ILLUSTRATIONS.

	PAGE
Border designed by Professor von Lützow, of Vienna	1
Ancient printing-press	1
Fourteenth and fifteenth century book covers, from the collection of W. J. Loftie, Esq., author of 'Art in the House,' Macmillan and Co., 1877	1
Book cover designed by Professor Storck and Professor Laufferberger, of the Museum of Art Industry, Vienna, with medallions in painted enamels, in the possession of the Archduke Rainer	3
Chair designed by Schönthaler	4
Panel designed by Schönthaler	5
Triumphal Arch of Titus, Rome (A.D. 70)	6
Wardrobe in walnut-wood, from the Vienna Exhibition	7
Faïence, designed by Geoffroy and Co., of Gien, France	9
Head of Æsculapius, from the British Museum	11
Casket, designed by Albrecht Dürer	12
Narcissus (?) found at Pompeii in 1865, now in the Naples Museum. A fine copy of this elegant work in bronze may be seen at Goupil's Art Gallery, Bedford Street, Covent Garden	13
Panel designed by F. Schönthaler, sculptor	16
Cabinet, early seventeenth century, from Loftie's 'Art in the House'	17
Vase (designed at Doulton's Lambeth Potteries), on view at Messrs. Howell and James's, Regent Street	18
Tabouret, by Haas, of Vienna	19
Façade, from Seemann's 'Kunsthistorische Bilderbogen,' of monument at Telmyssos (400 B.C.)	21
Solitaire designed by Bellezza, of Turin	23
Cover designed by Erhard, of Gmünd, Swabia	25
A terminal ornament by Draechslor	27
Head of Eros, from the Vatican Collection	27
The Lions' Gate at Mycenæ	29
Medals in lead, used during the fourteenth and fifteenth centuries by members of some of the Paris Trade Guilds	30

Special reference will be made to the vases in this number at a later date.—(ED.)

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INDUSTRIAL ART.

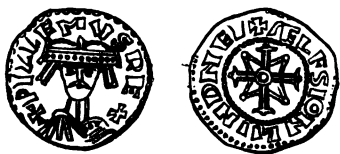
"The nation most quickly promoting the intellectual development of its industrial population by systematic technical education must advance, as surely as the country neglecting it must inevitably retrograde."—JUSTUS LIEBIG.



QUESTIONS of statistics are proverbially dry.

Had the Hon. C. W. Fremantle put together accurately and in logical

order a number of figures with accompanying facts, and presented these alone to the public as the Seventh Annual Report of the Deputy Master of the Mint, he would have done good work for the State. But he has not rested content with this. He has published a report which is not only useful as a statistical pamphlet of reference, but is an official document of immense interest also to archæologists and art students. It is a masterly production, whether judged of from a Treasury or an æsthetic point of view. He gives us a wonderful survey of coins, and medals in the body of the work, a survey which proves that he has made a profound study of numismatics and conquered its minutest details. He has spared no pains in the collection of materials, and his remarks on the scientific arrangements, portraiture on coin, and application of art to coinage, are equally admirable.



WILLIAM THE CONQUEROR.

It is quite natural that a man of this *calibre*, who adorns his pages with autotype illustrations, and points his criticisms with quotations from Pepys and Evelyn,

should take an artistic view of his subject, and endeavour by all means in his power to give an increased beauty to the works, the production of which he presides over. He draws attention to the fact, that the design of modern coins is in almost all respects decidedly inferior to that of coinages in former times, especially in the important matter of portraiture. It is true, indeed, that our rulers are not represented upon our modern coinage as bogies, like the portrait on the penny of William the Conqueror, but, to put it in the mildest form, the subject of late years has not received the consideration which it deserves, for we have not arrived at any degree of perfection with respect to durability of impression, correctness of portraiture, or beauty of design. Coins of



HENRY VII.

the realm seem, however, always to have been left in the lurch from an æsthetic point of view, their value for purposes of circulation being alone considered. Nor was this caused by the fact that in mediæval times England possessed no eminent workers in metal. William Austen lived in the fifteenth century, and the fine brass-work of the tomb of Richard de Beauchamp, in St. Mary's Church, Warwick, tells us what he was capable of doing. The coins of the reigns of Henry VII. and VIII., Edward VI. and Mary, are good, and bear the marks of the influence of Holbein and his pupils in this direction. The coins of Elizabeth are distinctly inferior to those of the three preceding reigns, and from that date to the present

there has been an alternating flux and reflux in the amount of care bestowed upon art in relation to coinage.

Towards the close of the eighteenth century, the Committee of the Privy Council on coinage wrote to the Royal Academy, requesting that body to "select such a committee as might be best furnished with that peculiar information which would best enable their lordships to improve and perfect the coinage of this country, as a becoming work of taste and art." We are sorry to add that no important result followed this step. The last attempts made to improve our coinage were those of Barry, Pingo, Pistrucci, and Wyon. The excellent effigy on the sovereign of William IV., by the last of these artists, is from a bas-relief by Chantrey, and still remains in use. After this came the collection of coins which, as equivalents of beef and beer, we are very happy to be able to jingle in our pockets, but which as specimens of art work, we have every reason to be heartily ashamed of.

Contrasting the history of coins in our country with that of Italy and France, we note with pain our lament-



IRON CASKET, FROM THE STOLLBERG'SCHEN FACTORY AT ILSEBURG.

able inferiority. As Mr. Fremantle says, "In Italy it cannot be doubted that the art of engraving to a certain extent still maintains its excellence. In France designs of great merit for medals and coins are annually exhibited in the salon, and art literature has been enriched by the publication under government authority of the 'Trésor de Numismatique,' elaborately illustrated, and containing the finest known examples of coins and medals."

Why cannot we do something like this? Why is the question practically shelved by the nation? Why is no organised effort made to improve our coins, to make them works of art, by the systematic training of engravers by courses of technical education upon the subject, supported and encouraged by Government?

It is not for a moment to be supposed that the Department of Science and Art are of the opinion of Rembrandt as to portraiture and design on coins, and consider these things as below the notice of the imitators of nature, but such seems to us the natural conclusion to draw from the

perusal of the correspondence which has passed between the Deputy Master of the Mint and the Director of the art school at South Kensington. Mr. Fremantle draws attention to the fact, that no school of engraving, properly so called, has been founded in this country. Mr. Poynter replies that he will bring the subject of die engraving for coins and medals under the notice of art students—hopes to be able to induce one or two of the more promising to turn their attention to an art which he acknowledges is in want of encouragement in this country, and then declares that beyond this he does not think the school is in a position to be practically useful.

Is not technical education a portion of the work of the Department? Such at least we believe to be the reason of the existence of similar institutions abroad. Of course it may be objected that there are no persons qualified to teach the art of die sinking at South Kensington. Our answer is, supply the want without delay. And if it be urged that the training of numismatic engravers would cost much and repay little, or that great painters of the present day are not likely to exchange their £3,000 per picture, for cramping, exhausting, minute and difficult work, which would possibly bring in £4 per week, we reply, this is the utilitarian view of the subject. We want coins whose obverse and reverse will be an education to those who use them, and a testimony in after ages to the refinement of our people in the nineteenth century. It is not with details of finance, but with the grand question of art culture that we are concerned.

Mr. Fremantle, looking at his subject from all points of view, sees its greatest defects, and immediately applies for assistance to the proper quarter. He practically asks the Art Department to help in the work by founding a special school, and the Department replies most courteously, that really at present it can do nothing beyond trying to induce Fanny and Augustus to interest themselves about coins and medals—

"Concisum argentum in titulos faciesque minutas,"

as Juvenal calls them.

This state of things, however, cannot last for ever. We look forward to the future with hope, supposing that when Government has had energy enough to disgorge the treasures of science and art, now hidden away in remote cellars, and to organise a permanent museum, it will no longer endorse the opinion of Cynthio in Addison's first dialogue on medals, where, quoting Vossius' observation that his barber had often combed his head to the rhythm of dactyls and spondees, he adds, "I must own, I should as soon expect to find the *prosodia* in a comb as poetry in a medal."

The Editor is pleased to announce that several finely executed wood-engravings are in course of preparation for this Periodical, intended to illustrate in a suitable manner, the choicest works of Industrial Art in several branches, recently produced by our leading British Manufactures.

THE NEW MUSEUM IN DUBLIN.



CORRESPONDENCE

has been passing for more than a year between the Government and the Royal Dublin Society, with a view to the enlargement of the latter institution into something much more picturesque, imposing, and, of course, costly.

The design sprang from the fertile brain of Mr. A. M. Sullivan, M.P., one of the Home Rule leaders, and was caught up as eagerly by the House of Commons and the Government as if the new creation were intended to consolidate and complete the Act of Legislative Union, which it is the dearest object of the honourable member's life to demolish. We believe that Mr. Sullivan is now tolerably well disgusted with the shape his pet institution is destined to assume, and is sorry he ever stirred a finger in the matter. His intention was to create a great focus of Art, Science, and Education, thoroughly Irish in its government and all its executive details, a rival of South Kensington, but wholly independent of that institution, magnificent in its architectural proportions, attracting numerous visitors to Dublin by the treasures it contained, accommodating under its roof all the scientific and artistic bodies of the Irish capital, and sending forth from its various class-rooms to every corner of Green Erin bands of highly trained teachers for the Science and Art Schools which were to disseminate industrial and æsthetic knowledge among the rising generation. All this was to be done, of course, out of Imperial funds; for it is an invariable characteristic of Irish patriotic schemes to include, among their indispensable conditions, a pull on the Imperial Treasury. For this we are far from imputing to them any blame. It is the fixed idea of the great majority of Irishmen that their country has been impoverished by its legislative connection with Great Britain. "You began," they say, "by suppressing our manufactures, and you ended by transporting to your own island almost the whole of our nobility and a good half of our gentry. You took the plums, in fact, out of our pudding, and all the money you can spend now in fostering Irish industry or any Irish interest whatever is the merest bagatelle compared to what we have lost and are daily losing by you." There may be a good deal of truth in this argument, but it does not follow that Imperial money ought to be squandered in the promotion of Irish schemes, whose utility to Ireland is small or doubtful. That the new museum will be of

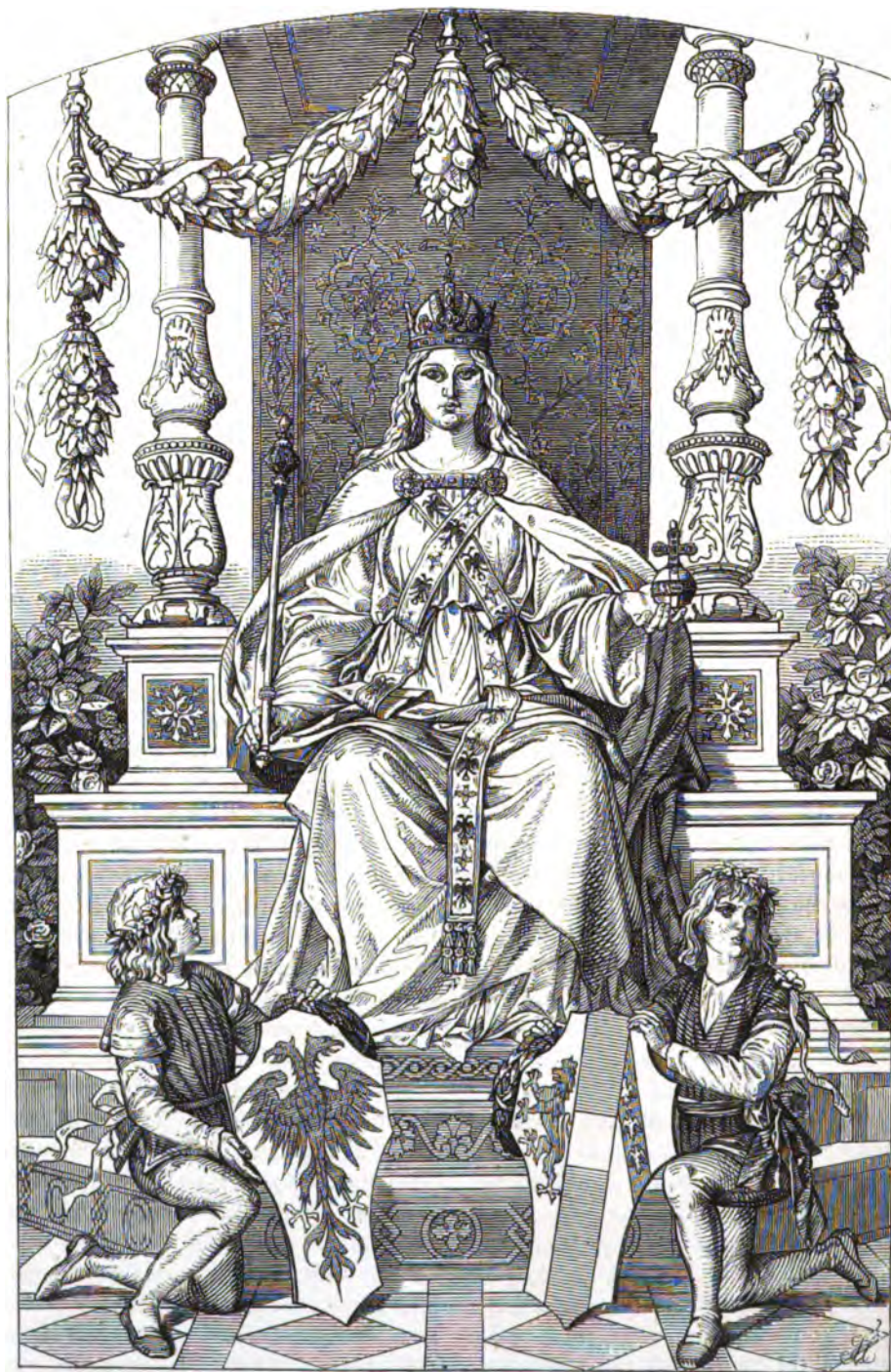
any benefit to Ireland may well be doubted. That Mr. Sullivan's original scheme—a much grander one—would have been worth one tithe of the money it required, we utterly disbelieve.

We see no advantage in collecting under one roof societies which aim at different objects and attract different classes of workers. The Royal Hibernian Academy, where painters and sculptors exhibit their works, can flourish in its present quarters in Abbey Street, as well as in the precincts of the Royal Dublin Society. The teachers of the provincial Science Schools can be as well trained and equipped for their profession in the Royal College of Science, Stephen's Green, as if thrust, cheek by jowl, alongside of cattle shows and public libraries. The Royal Irish Academy, a body devoted to the production of original papers in science and antiquities, and furnished with a valuable museum and library of its own, can perform its useful functions in Dawson Street as well as if conglomerated with a dozen discordant institutions on Leinster Lawn.

Mr. Sullivan is a man of extraordinary talents, but he is neither an artist nor a labourer in the fields of science, nor is he practically conversant with the details of education, except as a writer, and a very brilliant and nervous writer, in the public press. All the other agencies of culture, he views not from within but as an outsider, and, with his impetuous Celtic temperament, he has rushed into the blunder of mistaking bigness for efficiency, and architectural display for genuine brain-work, the mere husk for the kernel of the intellectual progress he has at heart. Perhaps if he had never possessed or written for a newspaper, he would have proposed that all the Dublin newspapers should be consolidated along with, or annexed to, his vast Irish Institute. We need not, however, discuss Mr. Sullivan's plan, for it has been deliberately and conclusively rejected. The welcome which was at first accorded to his vague sketch of it in the House of Commons is easily explained. English and Scotch members were well pleased to have an opportunity of showing that they were willing to promote any Irish object with which they, as Imperialists, could sympathise. No doubt, also, they would not quarrel with a little expenditure that would have the effect of pacifying Home Rulers without encouraging Home Rule. The Government were equally complaisant, partly for the same reasons, and partly because they saw a chance of making the new institute a branch of the South Kensington Museum, and thus a new bond of connection between Ireland and the Imperial system. Accordingly, when the Government began to lick Mr. Sullivan's plan into a practical shape, Lord Sandon proceeded to subordinate all the existing societies of Dublin to the South Kensington authorities. The Royal Irish Academy was not to produce a paper on Quaternions until the MacLeod of MacLeod had determined whether the formulæ were worth printing. The Royal Dublin Society, which was founded one

hundred and fifty years ago, and has rendered ever since important services to husbandry and the industrial arts was to dissolve into thin air, resigning its library, its botanic gardens, and all its property and functions

a school of chemistry; we presume it will be left *in statu quo*, as it would be too barefaced a job, too profligate a waste of public money, to dismantle its shelves and cases, and to uproot and scatter its splendid



'PHILOSOPHY.' STAINED GLASS WINDOW FROM THE VIENNA EXHIBITION.

into the hands of a local council, which would be virtually the mere registrars of decrees issuing from South Kensington. There was nothing said about the Royal College of Science, an institution which costs about 7000*l.* a year, and has never attained any success except as

laboratories and costly collections. The institution, except its chemical department, is mere surplusage in Dublin; and surplusage it would remain after its transport to Leinster Lawn. The Royal Hibernian Academy also is an institution which must remain *in statu quo*.

Lord Sandon and Major Donnelly, and two other gentlemen from London, paid it a visit some months ago, but received no encouragement to remove the Academy from its present handsome and commodious quarters. They were told that a larger house would be accepted as a free gift, but the independence of the Academy must not be tampered with. Independence, indeed, is just the quality that needs to be sedulously guarded in Ireland, where there has always been too great a tendency to look for aid *ab extra*. The Royal Irish Academy, too, had to wage a bitter fight for its independence, and has only secured it by parting with the property, and we fear with the control of its precious and unique museum of Irish antiquities. The Royal Dublin Society parts with its library and most of its other collections, and is to survive as a club, privileged to retain apartments in the new Museum and to hold its spring and winter cattle shows wherever it can get ground for the purpose. The Dublin press has applauded the project of a Museum, not exactly understanding what transformations will come of it, but hoping, no doubt, that some good Saxon money will be put in circulation by its means. Papers live, nowadays, by their advertisements, and a good deal of government cash will be spent in advertising the new Museum. Then, we need hardly say that there is a number of worthy people who hope to get employment if any big thing is started, and some hard-worked officials of existing institutions are looking to an increase of salary or the elysium of a retiring pension. We fear, however, that they will be disappointed, and that most of the good things that may be going will be absorbed by the hangers-on of South Kensington. In that case, we shall hear woeful lamentations over the jobbery that is perpetrated; while the mass of disinterested citizens will in any case regret the destruction of the beautiful Leinster Lawn, one of the chief ornaments of the city, over which, as we hear, a great granite building is to sprawl. The Museum began as a splendid patriotic vision; we fear it will end as an unsightly South Kensington job.

THE new Society for the Protection of Ancient Monuments and Records of Industrial Art grows in public favour. The committee has recently added to its list of earnest and efficient workers the names of Ruskin and Carlyle, the Rector of Lincoln College, Oxford, and Lords Houghton and Monteagle; the list of members is also increasing; in it, we notice of course the names of all the leading artists and archeologists.

A CLAIM, that Mr. Isaac Taylor was the originator of Cylinder Calico Printing in 1855, at Manchester, has been resisted by the writer of 'Calico Printing' in the 'Encyclopædia Britannica.'

MUSEUM OF SCIENTIFIC APPARATUS.



THE best method of inculcating the true value of art teaching in this country, is a question which has occupied the minds of most of the great thinkers of this and the last century. Large and many sided and comprehensive, it is a problem which so far from having been satisfactorily solved remains still a subject for the essayist to round periods upon, and the newspaper article-monger to manufacture leaders about. The importance of it is recognised by all, but few have seen—to take it from a utilitarian point of view—that self-interest should dictate practical measures without delay. That all classes of society are mutually inter-dependent has, we fear, been lost sight of; and that any change which beneficially affects one class must of necessity be a benefit to all the others, has not been received as an axiom sufficiently to stimulate society to any large amount of exertion on behalf of those engaged in industrial arts. It is now beginning to be recognised that amendment and reform must take the place of this unsatisfactory state of things, and that one of the agents of this reformation must be a better and more practical education for the masses. The period has become historic in which men and women talked about children being educated above their station. Such ideas are only favourites now with wealthy but ignorant tradesmen, aged and effete ecclesiastics, and dyspeptic old maids. Sensible men and women look with no little anxiety at the great gulf that is fixed between industry and intellect, and they are already in motion to bridge it over, believing, as they do, that want of coherence is weakness, and that in more senses than one the proverb is true, "L'Union fait la Force." (See *Illustration*, p. 3.)

In the winter of 1874-75, if we remember rightly, the idea of forming a loan collection of scientific apparatus was first mooted at the Science and Art Department, South Kensington. After a short time the Lords of the Committee of Council on Education took it up, and by a minute dated 22nd January, 1875, they approved of the proposal. One glance at the catalogue of the special Loan Collection will satisfy the most cursory observer of the importance and magnitude of the work. The catalogue itself—a ponderous tome—is an admirable volume, and when indexed and properly classified may be regarded as a work of art. According to the minute above mentioned the "Loan Collection was to include not only apparatus for teaching and for investigation, but also such as possessed historic interest on account of the persons by whom, or the researches in which it had been employed." The next step of their

lordships was to invite some of the leading men of science of the country to act on a committee "to consider the matter and aid them with their advice." The large and varied character of the scheme, and the fact that it was carried out in the broadest spirit, will appear from the multitude of eminent names on this committee. Their first meeting was held on the 13th of February, 1875, "the number of those who were present showing the interest already felt in the subject." The committee resolved "that such an exhibition would be most instructive and valuable." Five sub-committees of sections for classification were appointed, and the opening of the proposed science collection was definitely arranged for May 1876. It rapidly assumed—as indeed was intended from the first—an international character, and the way in which men of science abroad and foreign scientific societies responded to the invitation was most gratifying. Her Majesty's Ministers at Paris, St. Petersburg, Berlin, Vienna, Florence, Brussels, the Hague, Berne, Madrid, and Washington, interested themselves in the matter, and the foreign governments afforded every facility and encouragement in forwarding the work. The list of the foreign members of the general committee is full of names of the highest eminence, scientists of Belgium, France, Germany, Italy, the Netherlands, Norway, Russia, Switzerland, Austria and Hungary, and the United States appear upon the list, most of whom are of European reputation.

It would be quite impossible within the limits of a short article to give any details of the enterprise.

When the exhibition was opened it was announced that the objects were on view for six months only, and that after that period they would be returned to their owners. As the popularity of the collection increased, journalists and others began to hint that it would be a great pity to make it merely temporary, and that an endeavour ought to be set on foot to prevent the loss of such a collection for ever by its dispersion. The men of science and the public alike were earnest in their exertions to preserve at least a portion of the instruments and scientific appliances, which it was suggested might become the nucleus of a permanent national museum of science. Upon inquiry it was found that a very large proportion of lenders to the collection were willing to

give their priceless apparatus for such an object. When in December, 1876, the museum was closed—at about a week's notice—a good number of the instruments had been acquired, and facsimiles of historical apparatus to be returned, were executed here by permission of the owners. The collections of the Russian Pedagogic Museum, of Warmbrun and Quilitz, and of Ludwig Meyer of Berlin, Appun's apparatus, and many single instruments from different lands, are ours either by gift or purchase. The wonderful collections of M. Marey and Dr. Donders, a large proportion of the British collections, the collection of the Royal Institution, facsimiles of Von Guericke's hemispheres, Tycho Brahe's compass, Lavoisier's calorimeter, together with a series of early telegraph apparatus from the Post-Office, instru-

ments and engines from the Kew Observatory, the Royal Agricultural Society, and the Patent Office, and the collections of the office of the Warden of the Standards, of the Ordnance Survey, of Trinity House, as well as those of many private persons who allow their instruments to remain, are still ours. Surely, then, there need be no further apprehension. In addition, the Duke of Devonshire, Sir John Lubbock, Mr. Spotiswoode, Mr. Warren De la Rue, and Dr. Siemens, met and agreed to act as provisional managers for the guarantee fund being raised for the purchase of such portions of the scientific apparatus as cannot otherwise be secured. It is at this period in the history of the



DESIGNED BY SCHMIDT AND SUGG. VIENNA.

Collection, that we find a want of harmony between the Departments of Science and Art and the Patent Museum, the curator of the latter striving to obtain from the exhibitors some of the objects shown. However, this is a small matter, that we can afford to pass over without further comment, for the point at issue with us is not whether the permanent collection is to be in connection with the Patent Office, nor whether it is to be similar to the Paris Conservatoire des Arts et Métiers, nor whether it is to be modelled as to teaching upon the lines of the Science and Art Department, nor whether it should contain alone instruments by which the laws of nature are established, and meteorological and other phenomena auspicated, or should possess also geological and other collections. We are not specially interested in questions as to what shall be its position from a departmental point

of view, or as to how its officials are to be appointed. It is with the fact of the establishment of a permanent collection of scientific apparatus that we are alone engaged, and the keynote of our theme is that we have a germ already in our possession for such an undertaking, and that our wisest plan is to sink all petty matters of quarrel

shire had promised 5000*l.*, and many other promises of sums from 100*l.* to 500*l.* had been received, but some influence was brought to bear against it, and the intention has, for the time, been frustrated. The prospects, however, of a permanent collection are still good, for in addition to the list of objects given above many public institutions



TAPESTRY, DESIGNED BY FISCHBACH, AND WROUGHT BY HOCHSTÄTTER AND SON. DARMSTADT.

and differences of opinion, and set to work to promote its development.

For reasons which we need not enter into, the guarantee fund for the purchase of such instruments as were likely to be otherwise removed fell through. The management of the funds was in excellent hands; the Duke of Devon-

and private persons have promised contributions. It was originally intended that the loan and permanent collections should have been part of the same scheme, but now the latter will be a separate undertaking. One of the distinctive features of the exhibition closed last year, was the series of lectures and demonstrations given. When

the packing of apparatus commenced these lectures were continued, and it was hoped that they would still be carried on until the opening of the permanent museum. However, a short time since the free Saturday evening lecture was announced as the last of the present series. Are we to write "The End" here? We hope and believe not. The conferences, demonstrations, lectures to science teachers and free evening lectures are indeed concluded, but they have kindled a flame of enthusiasm in the heart of the *savants* and the public alike, which will not be quenched. The question is now in the hands of the Government, which has, we think, practically accepted the offer of the Commissioners of the Exhibition of 1851, who, under the presidency of H.R.H. the Prince of Wales, have voted 100,000*l.* for a building to be used as a permanent science museum.

To us nothing further seems to be required for the completion of the scheme but the consent of Government; but up to the present it has maintained a Sphinx-like silence because, as Major Festing explained, "it has had lately many other matters on hand." Surely the proposal cannot be ultimately rejected. There will be a very trifling annual expenditure connected with it, and, once founded, it will fill up the gap that exists in our present system of national education. The moment is ripe for such an event. A new era in the history of physical science in England is approaching. We have the goodwill and aroused interest of the public, the anxiety of men of science, the grant of the Exhibition Commissioners, the hearty support of the department over which the Duke of Richmond and Gordon presides, and, thanks to the generosity of *savants* and scientific associations at home and abroad, coupled with judicious purchases, we have also a splendid nucleus to commence with. Meetings are held in different parts of the country, discussions appear in our journals urging the propriety of different collections in every locality illustrative of the art and manufacture of the neighbourhood, and provincial as well as metropolitan scientific celebrities are clamouring in a dignified logical way for this national boon. The whole property of the Commissioners of the Exhibition of 1851 has been estimated at 1,500,000*l.*, and of this 350,000*l.* is now available. Why should not some of it be distributed amongst various provincial museums to encourage them to make local collections of scientific apparatus in connection with the proposed parent museum at South Kensington? The main object, however, is the establishment of a central collection, and we think the project, notwithstanding the petty opposition of one or two persons, is certain of success. Why should the prize be snatched by others? Why should we be beaten among the nations? Why should it still be written of us that notwithstanding all our advances, and all our solid work, up to the time of the Loan Collection we had no exhibition of those instruments of advanced and advancing science, which, to the manufacturer, trader, and artisan are ultimately of as much importance as

what are known as practical inventions? We have as great a store of intellect and resource as any foreign nation, and we have what continental peoples, with the exception of France, have not, and that is enormous capital. It may be said that we are not in the least behind our polite neighbours across the Channel, in that we rival their gratuitous instruction upon scientific subjects by the aid afforded to science and technical education, by the Science and Art Departments, and by the free lectures delivered at the School of Mines in Jermyn Street and elsewhere; but granting the good to be obtained from professional lectures, we urge that the country wants something more; we want to make English mechanical and scientific work, and indeed art work also, rival not only in durability but in beauty the works of Nuremberg, Mechlin, Sèvres, &c. England is not now doing the same proportion of the whole manufacturing work of the world that she was even thirty years ago. The iron works of Krupp of Essen, Govin of Paris, with those of Creuzot and the Terre Noire Company, are bidding fair to rival if not excel us; and this will not only result in a sentimental grievance worthy the moan of a Ruskin, but in a practical one affecting the condition of the majority of our population. Not very long since the art critic to whom we have just referred complains of "the capitals of our iron-shafts in any railway station," and says that "they are things to make a man wish, for shame of his species, that he had been born a dog or a bee." Allowing for the frantic enthusiasm which characterises most of his later utterances, Mr. Ruskin is partially right. Utilitarianism is the order of the day; the struggle after things of secondary consideration, and the indulgence of petty ambitions, have left their mark upon the age. Even advanced science has felt the impact of the wave, and science lectures fail to attract unless they have some special reference to a practical end. At a meeting of the Physical Society early this season, a photograph of the spectrum of the Star α Lyra was exhibited, and its success was commented upon as of great interest, not only because it is the first successful photograph of a star spectrum, but because it gives information for which chemists have been waiting, and Professor Barrett, when lecturing one Saturday evening at South Kensington, chose as his subject some practical applications of electricity. If this mode of thought has its evil side in shelving the æsthetic part of the national mind for a while, it is also productive of good, in that, in the great struggle for existence, persons of all ranks and classes seize with intense avidity upon any new discovery in art or science, in the hope of finding some practical good for self. There is hope, therefore, that when this transition state is over, and long before the new era of physical science has attained its noon, the national mind will revert with pleasure, and for rest, to abstract science, and apply it not only to the immediate wants of the body, but to the cultivation of æstheticism

in all our surroundings. There is no lack of proof of the interest aroused amongst the working classes by the late Loan Collection; the lecture theatres were completely filled on each occasion, and many were unable to gain admission; and whenever "a demonstration" occurred, *i.e.* whenever scientific men gave descriptions of the apparatus shown, the public have exhibited an intense interest to hear what has been said; thus showing the eagerness of the *vulgus* for a knowledge of the methods by which men of science work. And if we turn to find whether there be signs of this eagerness elsewhere than South Kensington, we have only to look at the numbers of persons that crowd our Galleries and Museums on some general holiday; or in the provinces how, wherever a local museum is set up, the working classes, and not the dilettanti, are the first to benefit by it. For instance,

purposes, all patronage, all endeavours of learned men, would be useless without the response of the thews and sinews and intelligence of the nation. But the British workman is not about to copy the *rôle* of Mr. Tennyson's 'Lotus Eaters', the cry of 'let us alone' is not to be heard in the stalwart ranks of our toilers. No! Another great cry has arisen, heard throughout the land. It is, we want more instruction, we desire more food for the mind; teach us, let us have popular methods of technical education; give us, as you have given the children of the great, an art education in matters pertaining to our trades, and we will make you and the world a noble return; we will not give you tawdry work of inharmonious colouring, to be thrown back upon your hands by the selecting committee of some future American Exhibition, but masterpieces of durability and beauty, worthy



SILVER JARDINIÈRE, DESIGNED BY MEYER AND CO. BERLIN.

what is the history of Mr. Bragge's work at the Sheffield Museum? We know that a great part of the credit is due to him for initiating it, and that he has spared neither trouble nor cost. But two or three lines that appeared with reference to it in a recent criticism have repaid him, and every other man anxious for the improvement of the working classes of England. The words are—"His own" (Mr. Bragge's) "splendid collection of wrought-iron work, formed by years of unremitting care, makes the nucleus of a show which ironworkers have already been enabled to study." The men of England are beginning to feel ashamed that they are beaten in the markets of the world, and they are arousing themselves to inquire the cause of their failure, and to remedy the defects of their work. This is, indeed, a happy sign, for all subscriptions and donations of money, all gifts of apparatus, all grants of land and buildings for museum

to be compared with the best efforts of a Quentin Matsys, or the chefs-d'œuvre of a Bernard Palissy. The duty of those who have the power is to act, and act wisely at once, to value at its true price the influence of art in social progress, to make technical education a part of our national system of instruction, and to remember that every year that passes prepares the mind of the people for the attainment of scientific knowledge at a rate of progress that many of us have a very inadequate conception of. There are children now in our schools that may yet be the glory of our nation and of the whole world, and to whom a national gallery of science will in their future lives be an imperative necessity, because it is the only real way of studying physical science. Of what use to such as these will books be without lectures, without "demonstrations," without practical teaching, without the feeling and hand-

ling of the means and appliances of science? The bare symbols and severe grammars of our schools have to a large extent been replaced by more genial methods of instruction, and if in the education of our men it be necessary to burden them somewhat with formulæ and definitions, we must also give them an enlarged kind of Kinder-Garten system, if we desire that permanent traces of their studies be left in their minds. The artisan should be able to see the growth of scientific thought and the progress of scientific investigation. He should be made to feel that he is not only the unsympathetic

cast our best—not our silver and gold, but *ourselves*—into the yawning gulf, and it would speedily close.

On all sides the necessity for radical educational reform is admitted, and even such great conservative bodies as the City Companies and Guilds are engaged in the consideration of a scheme for founding a central industrial university, with local colleges of technical training, not under compulsion, but because they cannot resist the influence of the age. The spirit of progress has infused new life into them, and suggested a reformation from within. Surely this is a promising sign of the times.



CONCERT PIANO, BY J. BACH AND SON. BARMEN (PRUSSIA).

“hand,” who as a machine works out the idea of the master without one thought of its *raison d'être*; but also that he is a sympathising and intelligent mind, capable of grasping the idea at least in part, and looking forward to no distant future when he himself may confer some scientific boon upon society. If this were the case, how much less we should hear of such phrases as the antagonism of labour and capital, the social revolution of the working classes, and the chasm that divides the sons of ease from the sons of toil! for we should have annihilated the antagonism, consummated a bloodless revolution, and, like the stainless knight in the antique forum,

If this development continue, the time is not far distant when it can no longer be said with truth, that we are at a very low level of art workmanship, and behind the age in the production of scientific instruments. It will be uphill work for the nation in more senses than one, for not only must we struggle to retrieve the errors of our past, but to prepare our children for the severe foreign competition of the future. We have this in our favour, that the nation is of one mind respecting its wants and the method of supplying them. We can afford to treat, with the contempt they merit, the objections of one or two persons who, actuated by stupidity or

vindictiveness, have written the most intolerant and venomous nonsense, and repeated their accusations with the most persistent animosity. Experience has abundantly proved that the collection was not for the few, but for the many; that it was useful by way of reference to others than experimenters and teachers; and it is surely an ignoble method of opposition which anonymously calumniates those who have interested themselves in forming the collection, and suggests that their main object was to construct snug berths for themselves. It must be that these detractors either do not believe what they themselves have written, or, from too much introspection, have formed a warped and exceptionally low estimate of the morality of mankind. These are men—if, indeed, they can be called men, who stab their friends and associates in the dark—who, from some motives of personal irritation, or of some other kind, have made a grievance for themselves out of this question of a proposed permanent Science Museum. They call it a nuisance and a sham because it breaks in upon their petty routine, or compels them to think and read up to the level of the age; or, perhaps, because they themselves have been defeated in subtle endeavours to procure comfortable berths in connection with it. But we are accustomed to this. Not long since, exhibitions were voted a bore by the Art and Science powers that be, because some unhappy fossils wanted to stand still in an age of unrivalled progress. Manufacturers have complained over and over again that inventions and new discoveries were a mistake, because changes were necessitated in their tools and machinery. Individuals, however, must learn to study, not their own selfish wants, but the public good. It is time that such objections should cease.

We will dismiss these gentlemen with one word of advice at parting. They may not be studious readers of history. Let them remember that even if the permanent collection should do nothing else, it will continue the work of that one which has passed into the realm of recorded facts; let them study the archives of older centuries, and they will then see that few educational changes are made without cost, and that in the midst of a great unselfish work it is a craven cry which complains of expense and urges inquiry into minute details of expenditure. The pretence of these men is that the permanent collection will not be for the artisan, but for the aristocratic man of science; ignoring the plain facts, already stated by its supporters, that it will be—as the Loan Collection has been—a means of enabling teachers to give practical demonstrations to their pupils, for poor and illiterate men to study the inventions of distinguished physicists, for artisans to copy the great works of all ages, and, by combination, create new designs in art-work and become originators themselves, for isolated toilers to communicate with one another, and employers and employed to draw nearer for their mutual advantage and the ultimate gain of the nation.

The one objection to the scheme which is of any

importance is from another source, and that is the abstract character of the proposed collection. There seems to be some truth in this objection, but it will only find acceptance with those whose faults are want of thought and want of reading. Science is no longer a weakling, but a giant in the world. Briareus-like it stretches its hands into all fields of thought, but it has asserted its power chiefly for practical purposes. To it we are indebted for our present financial position, to it for our almost unrivalled industries. Every man of science in the present day urges us to make practical use of mathematical principles, and even the most strictly abstract sciences are of importance in the daily avocations of common life. To chemistry we owe all our new methods of bleaching and dyeing, new methods of resistance in machinery by increased hardness of metals, and countless other benefits. Chemistry enables us to deal with the sewage of our cities, the smoke of our factories, and the prolongation of our lives. If we turn to photography the result is the same. Pictures of scenery in new countries, accurate delineations of their strange natural characteristics, faithful records of astronomical phenomena: for all alike of these we are indebted to photography. Again, call biology, if you will, an abstruse study, but observe its utility in the light that it has thrown upon the history of infectious diseases, and the radical change it has wrought in the theory of agriculture.

We know that at present there is a widespread prejudice against Exhibitions, but this is foolish unless it be universally admitted that we are unable to improve our methods of exhibiting. Since 1851 we have learned the lesson which a bitter experience teaches, and we are no longer content to be outstripped in the race for the palm of industrial supremacy. America and Austria are running us hard, not only in particular branches, but in our manufacturing industries as a whole.

We say then it is time that, as a nation, we should acknowledge that completeness and strength are not enough, and that we should strive to educate ourselves up to the level of the present, and in some measure prepare the younger generation for the rivalry on which we have already entered. Our artisans are mechanically skilful. Let us teach them what the true principles of art and science are; let us encourage them to produce worthy work; let us remind them of what England has done in the past; let us insist upon superior Technical Education, and we need not dread the result of the great war of culture that is coming, nor fear for the art and science future of England.





"THE RHINE;" A DESIGN FOR A PUNCHBOWL IN HIGH RELIEF, BY O. KÖNIG.

ÉCOLE POLYTECHNIQUE, PARIS.



ONE of the necessary consequences of the immense advance made in human knowledge during the last half-century has been the proportionately greater development of science teaching relatively to that of arts, and as a further consequence, the con-

tinuous increase of institutions specially dedicated to the teaching of science. The rôle of these is daily becoming more important in the general and very complicated question of education, and has actually attained such a point that the diffusion of sound and sufficient scientific training must be considered as of vital importance for the independence of the State. Thus it is that the army, the navy, the civil administrations, our whole manufacturing system, and our methods of communication and conveyance, are intimately and closely knit together by the web of science in its manifold applications, and that branches of the state service traditionally the most distinct, present at present but faint lines of separation, so far as fundamental training goes.

We have therefore a very considerable interest in inquiring what is the present state of our scientific training institutions, and how far they are adequate to the present and future requirements of the community, and of the State in particular. Were we to enter on this inquiry by examining in detail our various schools, we might not perhaps arrive at a result entirely satisfactory; we might even feel rather perplexed than enlightened, and ultimately be tempted to look around us for some term of comparison by which to gauge our actual state, and thus arrive at some definite conclusion.

It would not be difficult to select, either from European or American States, many most instructive elements of comparison; but there are certain conditions which justify our selecting those presented by France. Historically no nation has been more prominently before us,

particularly since the commencement of this century. Its political alternations, the most frequent and the most violent of any state in Europe during the period, have culminated in disasters and losses so sudden, so apparently overwhelming, that even the most enthusiastic of her citizens barely hoped in 1871 that a slow recovery might eventually take place. We have to assume, therefore, political conditions seemingly so unrealisable, that there remained but hope, and the spirit of steadfast patriotism, backed by that national energy which has so frequently illumined the pages of history with its most vivid and varied pictures.

As yet but seven years have passed away since then, and we now find France, in 1877, commercially one of the most prosperous in the world. We witness her army regenerated, her national defences in a remarkable state of advancement if not complete, her navy sound, her systems of administration adequate to her wants, and her place amongst nations again amongst the foremost and the most respected; and we ask ourselves, How has this wonderful change been brought about, notwithstanding the gloomy forecasts of the soundest and most experienced political observers of our times? The answer to this question involves the study of many chapters of history, and the consideration of every agency capable of shaping the actions of men; but we may confidently assume that this national rebound can in a large measure be attributed to the general soundness of the system of scientific training prevailing in France. Science must have been taught generally, systematically, soundly, and sufficiently to allow of its intervention being thus actively and efficaciously employed, in spite of the many adverse circumstances which occurred during the course of those seven years, which are so well known to the reading public. Had their system of scientific education been wanting in any serious respect, most clearly those results could not have been attained, nor could there possibly have been created a new one in so short a time, with even the faintest chance of a successful application. We may therefore consider it as having undergone the severest test that the most practical mind could devise, or that history could suggest; one therefore most worthy of our attentive examination, and fairly capable of affording us some at least of those

sound points of comparison so requisite for a correct judgment on our own systems.

It is not necessary here to examine every school teaching science in France, since, in so far as the public service is concerned, they must teach up to a certain standard in order to ensure to their scholars fair chances of being allowed to compete for appointments in the public service. Again, the entrance into nearly every branch of the state service is through some one special school of training, access to which necessarily involves competition. Those state service training-schools have for our inquiry a special interest, since their function is to supply the public departments with the men who in the main make or unmake France, and who therefore have so largely contributed to the rapid national recovery.

Now those schools have one great common feeder, the Polytechnic, and consequently by studying its history, its organisation, and its methods of teaching, we may acquire a correct idea of the basis on which the public services of France have been and are built up.

The origin of this school is in itself very instructive, springing as it did from a period of crisis, when the very existence of the State was menaced. Its history is well told by M. Mortimer D'Ocagne in his excellent work, "Les Grandes Ecoles de France," to which we shall have frequent occasion to refer.

Of the many universities, colleges, and special schools existing in France at the commencement of the Revolution, but very few were allowed to survive the first year of that memorable event, so that towards the end of the year 1793 all public teaching in arts and sciences had ceased; all the colleges were either closed or deserted, the greater number of the professors, being ecclesiastics, were proscribed and banished; lastly, a decree of the Convention, calling to arms all the male population from eighteen to twenty-five years of age, had swept into the army the young men at that time pursuing their professional studies. In one word, all studies were suspended. A few special schools alone survived this general disorganisation, but apparently only to linger on to ultimate extinction. They were—

The Artillery Corps School, originally established at La Fère in 1756, and which had been reconstituted at Châlons in 1790.

The School of Military Engineering.

The School of Bridges and Roads (Ponts et Chaussées), founded in 1747 by Pernolet. (Its scholars had just been requisitioned by the Minister of War for active service as Engineers.)

The School of Naval Engineers.

The School of Mines; and lastly,

The School of Geographical Engineers.

Of all these schools, that of the Ponts et Chaussées excited the liveliest interest, on account of its critical position. By reason of its peculiar constitution, the students of the second year or of the first class were really the professors, teaching the second class or younger students. The first class having been drafted into the

army for active service, the teaching staff no longer existed, and new professors could not be provided. The then director of the school, Lamblardie, conceived the project of a preparatory school, which would be common for all the Engineering Corps. This project was submitted to Monge, who took it up warmly, and who, availing himself of his political influence, sought to have it carried into execution. At that time the Committee of Public Safety was assisted, consultatively, by a sort of congress of *savants*, each of whom worthily represented some one or other of the exact or natural sciences. To this body Monge belonged, and was as distinguished by his mathematical talents as by his ardour at work. His representations were therefore well received, and found a warm support in Carnot, one of his former pupils. Their joint influence led to an enactment, requiring the Commission on Public Works, instituted by the law of the 11th of March, 1871, to take into consideration the establishment of a *central school of public works*, as also the method of examination and of competition which might best be adapted; therefore the Commission on Public Works took up its official residence in the Palais Bourbon, and proceeded to adapt to the purposes of the school some of the dependencies of the Palace. Meanwhile Fourcroy, a member of the committee, submitted a report on the constitution of the school, and it was solely by his representing the Engineering Corps as the indispensable auxiliaries of the army, that he could overcome the antipathy of the members of the public safety committee to re-enact what appeared to them a privilege. The law constituting the school passed in September 1794. The conditions of admission then fixed upon were as follows: Good conduct, attachment to Republican principles, a knowledge of arithmetic, and of the elements of algebra and geometry; the limits of age were fixed at sixteen and twenty years; 400 students were to be admitted, and from the day of their arrival at the school they were to receive pay at the rate of 1200 francs per annum = £48. The students were guaranteed employment as engineers on the completion of their studies in one or other of the public departments, account being taken of their individual capabilities. Lamblardie was appointed director. The entrances did not come up to the number fixed by law, that is, 400, having been only 349, and for these the required conditions of age had to be dispensed with in certain cases, and even the law against nobles held in abeyance as regards others.

Mathematics and physics formed the two principal branches of instruction at the school. The course extended over three years, and was thus subdivided:—

First Year.—General principles of analysis and of its applications to solid geometry (*géométrie de trois dimensions*).

Stereotomy.

Course of general physics (first time).

Applied physics (inorganic chemistry), chemistry of saline bodies.

Drawing, according to talent of student.

Second Year.—Application of analysis to the mechanics of solids and fluids.
Architecture.
Course of general physics (second time).
Organic chemistry.
Drawing.

Third Year.—Application of analysis to the calculation of the effect of forces.
Fortification.
General course of physics (third time).
Drawing.

The hours of attendance for students were from 8 A.M. to 2 P.M., and from 5 P.M. to 8 P.M. From this detailed programme of studies it will at once be perceived how much stress was laid on thorough instruction in physics; the same general course being repeated each year, and the students continually examined thereon.

By a law of the Convention, passed the 1st of September 1795, the name of the school was changed to that of "*Ecole Polytechnique*," the constitution being at the same time largely modified. The school was in fact reconstituted, and the level of the studies raised.

In 1800 the regulation was adopted by which all students, having successfully terminated their studies, were obliged to enter the special schools of training for the public service. There was also instituted at the same time a "council of perfectionment," having for special function the study and examination of all modifications capable of improving the methods and matter of the teaching, so as to keep pace with the progress of science, and with the requirements of the public service.

On the establishment of the Empire in 1801, the school received a strictly military organisation; the old college of Navarre was assigned as barracks to the newly formed corps. The scholars were formed into a battalion of five companies. The applications for admission rapidly increased, and the students, instead of being paid, had to pay a "pension" which was fixed at 800 francs = £32. exclusive of outfit, books, and instruments.

The subsequent history of the school records but few important modifications of the constitution. The *restauration* led to political *émeutes* amongst the students, which were repeated several times between 1816 and 1853, the period of the Second Empire. The school was in consequence as often broken up, but each time was again reconstituted, practically on the same basis.

In its actual state the Polytechnic School is specially intended to prepare students for the following branches of the public service:—

Army and Navy; Artillery Corps; Military Engineers; Naval Engineers; Navy — officers; Hydrographic Engineers; Marine Commissariat; Ponts et Chaussées; Mines; General Military Staff; Government Manufactures; Telegraphs. Lastly, Special scientific missions and services requiring the combined and thorough knowledge of mathematical sciences, physics, and chemistry.

The course of study extends over two years.

Students can only be admitted into these branches of

the public service, after having satisfactorily passed their final examinations at the end of the second year.

The school is under military discipline, and the scholars wear a uniform.

The pension is 1000 fr. = £40 per annum, and 600 fr. = £24 for outfit.

Burses and half burses are allowed to students whose parents cannot pay the entire pension, on certain prescribed conditions. In like manner, outfits, or half outfits, are also allowed.

Admission to the school is by "competitive examinations." These are held every year, *are public*, and are partly written, partly *viva voce*. The subjects examined in are strictly those of the programme of admission. For those examinations the degree of Bachelor of Arts or of Sciences is absolutely requisite; and fifty points are allowed to the holder of both degrees.

There are two *viva voce* examinations. The first is intended to allow of the student qualifying for the second, by showing that his attainments are sufficiently high. This last fixes the entrance classification of the admitted students.

No student is admitted to the oral examinations who has failed in the written one. In this, all the subjects of the programme of admission are taken up; there is, moreover, required from each student a French composition, a drawing (*épure*) in descriptive geometry, a tinted drawing (*lavis*), and a crayon drawing, either from a subject on paper, or from the round. The following are the co-efficients used for the different subjects taken up in the second *viva voce* examination, by which the classification of the admitted students is made.

I. WRITTEN EXAMINATION.	COMPOSITIONS.
Mathematics	15
Drawings (<i>épure</i>) of Descriptive Geometry	13
French Composition	14
Solution of a Triangle.	5
Figure drawing	12
Tinting (<i>lavis</i>)	4
II. VIVA VOCE EXAMINATION.	
Algebra and Analytical Geometry	52
Elementary and Descriptive Geometry	50
Physics and Chemistry	40
German	8

At the commencement of the examination, each competitor presents to the examiners his notes of calculations, *épure*s *lavis*,* and drawings made by him during the then current scholastic year or session, as required by the specifications of the programme of entrance.

The age of admission is from 16 at least to 20 at most, on the 1st of January preceding the competition.

The various other conditions prescribed have a purely legal character, and do not bear upon the general question of education.

(To be continued.)

* For convenience' sake, the terms *épure*s and *lavis* are employed, there being no precise equivalents in English equally concise. *Epure* means essentially a descriptive geometry drawing or one involving only geometrical elements. *Lavis* are the conventionally tinted architectural engineering or mechanical drawings.

THE IRON AND STEEL INSTITUTE, AND INSTITUTION OF CIVIL ENGINEERS.

DURING the meeting of the Iron and Steel Institute, held at Leeds, the President, Dr. Siemens, F.R.S., drew particular attention to the advisability of

taking some action for procuring a distribution of a portion of the property held by the Royal Commissioners of the Exhibition of 1851, for the purpose of promoting technical education in the more important of our manufacturing and industrial districts. He pointed out the fact that technical education was first recognised on the Continent, whilst the only special educational establishment for the metallurgists of Great Britain was the School of Mines, and that institution was capable of great improvement. An excellent example had been set by the city of Manchester, which in creating Owens College had laid the foundation of a technical university. With regard to the question of labour, he thought that the best means of avoiding uncertainty and loss in the time to come would be by establishing the relations between employers and employed upon the basis of mutual interest. Next in importance to cheap, or rather to efficacious, labour in the production of iron and steel was cheap fuel. The form of fuel which possessed the greatest interest for the iron smelters of Great Britain was, without doubt, coal, and recent inquiry into the distribution of coal in England and other countries had proved that the stores of the invaluable deposits were greater than had at one time been supposed. Roughly estimated, the total area of the discovered coal fields of the world amounted to 270,000 square miles. According to the present rate of consumption, 250 years would appear to be the life of our coal fields. As regarded the Iron and Steel Institute, he hoped that its position would be recognised in official quarters, and he desired that it

should be possessed of a habitation in a central locality, which should comprise office accommodation, a library, a model-room, a lecture-room, and laboratory. The new building, for which Government might grant a central site, might accommodate the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Naval Architects, the Society of Telegraph Engineers, the Iron and Steel Institute, and possibly other societies.



MODELLED BY M. SPIERS. BERLIN.

In the course of the last twelve months, at the meetings of the Institution of Civil Engineers, the following premiums have been awarded by the Council of the Association:—Watt Medals and Telford Premiums, to Mr. W. W. Beaumont and Mr. W. C. Unwin, for papers on 'The Fracture of Railway Tires' and 'The Resistance of Boiler Flues to Collapse'; Telford Premiums for papers on 'Street Tramways,' by Mr. Robinson Souttar, 'The Testing of Portland Cement,' by Mr. I. J. Mann; 'The Emission of Heat by Hot-water Pipes,' by Mr. W. Anderson; 'The River Thames,' by Mr. J. B. Redman; 'The Transmission of Power,' by Mr. H. Robinson; 'The Repairs and Renewals of Locomotives,' by Mr. A. M'Donnell; and on 'The Japan Lights,' by Mr. R. A. H. Brunton; while the Manby Premium has been adjudged to Mr. C. Norman Bazalgette for his paper on 'The Sewage Question.' A Miller Scholarship of £40 a year, tenable for three years, has been bestowed upon Mr. Percy R. Allen, for his communication on 'Machine Tools,' and Miller Prizes have been given to several other students.

HER Majesty's Commissioners for the Exhibition of 1851 received a deputation of mayors, sent to advocate the claims of provincial towns to share in the funds at their disposal more largely than was proposed. They did not approve of scholarships, and asked that assistance should be given for the erection of museums. H.R.H. the Prince of Wales presided; Maj.-Gen. Scott, Secretary.

SECOND ANNUAL EXHIBITION OF PAINTINGS ON CHINA.

WHILE members of the House of Commons are discussing questions in relation to Science and Art, and amicably agreeing to the proposal of Lord Sandon to shelve such little matters until next year, it is very comforting to think that the development and popularising of Art is being taken up by the public and carried on with enthusiasm. We have an Imperial Princess willing to patronise, and an enterprising firm judicious enough to encourage one branch of the subject. We have professional and amateur artists vying with one another in friendly contest; and finally, we have an annual Exhibition in interest second to none. It was a

Her Imperial Highness the Crown Princess of Germany most kindly consented to become patroness, and in due time—the preliminary steps having been taken to ensure success—the first Exhibition was held. The undertaking prospered. The experiment of last year being a triumph, encouraged the promoters to hold a second Exhibition. The paintings have been on view up to the 31st ult., and a marked interest has been shown in the collection by the numerous visitors. The number of exhibitors has greatly increased, and the display of work, brim full of promise, has obtained a unanimous expression of approval from the art critics. The pictures are all original, they were exhibited by the artists themselves, and were for sale at prices quoted in the neat catalogue, which, at half the expense, rivals its aristocratic cousin of Burlington House. The prizes have been distributed, the onerous task of judging the works and making the



FIRST PRIZE. DESIGNED BY MRS. G. STAPLETON.



SECOND PRIZE. DESIGNED BY MISS C. M. SHEPHERD.

happy thought—we beg your pardon, Mr. Burnand—that of establishing a yearly Exhibition of paintings on china, at which both professionals and amateurs might compete for prizes. The night has been long, but the day has dawned at last. Now that private individuals have come forward, and the curiosity of the people is fairly aroused, we may hope for the revival of our national Art teaching which had nearly died out, and we may hope also that our most efficient of art-school inspectors—who seeing their occupation gone were constrained to become Professors of Cookery or to accept other and equally unaccustomed employment—may resume their proper work.

Two years ago, Messrs. Howell and James generously announced their intention of placing their Art pottery Galleries at the disposal of the public, for an annual Exhibition of paintings on china by artists and amateurs.

awards having been undertaken by E. W. Cooke, Esq., R.A., and Frederic Goodall, Esq., R.A., who acted in the capacity of judges.

It would be impossible within the limits of a short article to attempt to criticise the collection fairly. We can do no more than notice a few of the works produced. As to the list of the awards made by the judges we cannot find space for the names, and must refer the reader to the catalogue itself. Of course where the paintings of all comers were accepted, and each contribution was hung with due regard to the wishes of even the youngest exhibitor, it would be invidious to criticise too keenly the individual specimens; but in the great number of works which unquestionably rose above mediocrity, there was much reason to congratulate the Imperial patroness and the kindly promoters of the scheme. The general effect of the exhibition was perfectly charming, and the novelty

of the subjects and variety of treatment could only be fully appreciated by those who personally inspected the pictures submitted.

Amongst numerous meritorious works of art we may mention—

1. Three really fine designs of flowers, fruits, and foliage, named and numbered in the catalogue "Blackberries (465)," "Buttercups (466)," "Daffodils (467)," all treated conventionally by Mrs. George Stapleton. These works won the gold medal presented by H.I.H. the Crown Princess of Germany, for competition by lady amateurs.

2. A lovely spray of passion flowers, towards which a glittering butterfly flutters daintily, whose right wing, exquisitely foreshortened, seems to stand out from the plane of the plate. This painting, No. 460, by Miss Christina M. Shepherd, won the prize of ten guineas.

No. 483, "Snow," a very fine atmospheric effect, by Thomas Davidson; and No. 617, "Storks and bulrushes," by M. Belet.

We have already in our first number referred to this decorative art on page 29, and we have given an illustration of the fictile ware on page 15 of the same number.

Before we draw to a close, it will be necessary for us, as impartial critics, to point out some things not altogether worthy of praise in the Exhibition now closed. There were not many mistakes in the flower paintings, but we noticed here and there defects arising from want of observation and from want of knowledge of botany. For instance, in pictures not intended to illustrate the various seasons, flowers were grouped which never bloom together, and even where fancy was allowed full licence she seemed to run riot, and the parts of a flower became



THIRD PRIZE. DESIGNED BY MISS LINNIE WATT.

3. "A pair of Bacchanalian figures," Nos. 600 and 608, by A. de Mol, and "See-saw," No. 602, by Miss Linnie Watt. These have been jointly awarded the prize of fifteen guineas. Miss Linnie Watt is a professional artist, and her picture deserves special commendation. It is a fine work, strongly marked with the genius of the French school.

Of other paintings we may note: No. 35, "Pasque-flower," by A. H. Church; No. 43, "Ornamental design of Daisies," by Mrs. George Stapleton; No. 88, "A coming Squall," by Captain Talbot Coke; No. 95, "Castel Durante," by Louis Fagan; Nos. 98 and 126, "Landscapes," by La Comtesse de Villermont; No. 189, "Cardinal Richelieu," by Lady Rawlinson; No. 458, "Study of Narcissa," by Miss Alice M. Grey; No. 470, "The fair Puritan," by Ellen Ross (Mrs. Mallam),

distorted and unnatural. Again, the selection of colours was not always successful, but observation will teach the student to avoid errors of this kind in future, if the French productions and the works of the prize-winners are carefully noted. Of the technics of china-painting we shall not speak; many competent teachers are to be found, and the cost of failure as a candidate for prizes is well worth the gain in experience. We have only one regret in connection with the Exhibition, and that is, that Mrs. Sparkes's picture—one of the finest works of the season—arrived too late for competition. With this exception nothing occurred to disturb the success of this most praiseworthy undertaking, and we are convinced that the thanks of the public are due to the firm which has rescued this delightful art from unmerited obscurity.

RECENT APPOINTMENTS AT SOUTH KENSINGTON.



FACT is known to all, that our universities, from their foundation to the present day, have followed the laudable custom of inviting at rare intervals to their schools foreigners already distin-

guished amongst their own countrymen for their great erudition in some special line of study.

It is to this liberal spirit and sound policy that we may justly attribute the ever-increasing vitality of these ancient institutions.

No feeling of unmanly discontent or carping criticism has ever been displayed by even the narrowest-minded pedagogue at the nomination of any man of letters—from Erasmus to Max Müller—to a valuable professorial chair, on the score of the new-comer being a foreigner. The fact that he was a person of known worth, high scholastic attainments, and wide reputation, has been at all times a sufficient passport to our affection and esteem.

In due course the fruits of this generous treatment of strangers dwelling amongst us have manifested themselves, in the ready acceptance of the new and broader views imparted to our system of education; and every fresh appointment of the kind has served as a new stimulus to learning and literature.

But at no period of our history was this foreign aid the only resource relied upon. We should have been in a sorry plight indeed by this time, if we had depended altogether on purely adventitious aid to impart instruction to our youth.

This would have been a proof that either as a nation we were utterly incompetent to deal with matters with which *we* are more immediately concerned, the cultivation of art principles; or that the system of teaching universally adopted in our schools of design had been either defective, or altogether vicious, from the hour when the Government of the country took upon itself to direct the Art teaching of the masses.

At no time in the history of the university system to which we have referred, have the heads of houses set aside a scholar of their own foundation in order to find a chair for a foreigner of little repute; and it surely

must be a matter of wonderment to the outside world, taking as they do more or less interest in the progress of Art teaching in England, that, after all the outlay we have incurred hitherto for the supply of masters, models, and materials, not a single native art master could be found amongst us who had ability, training, or teaching sufficient to qualify him to hold a mastership in the South Kensington modelling school, or that out of the pupils of thirty years was there one who knew enough of the technical details of the simple method and practices of the etcher's art, to justify the authorities in advancing him to the position of master in that simple branch of industry.

If, then, it is true that no English instructor could be found for either of these special masterships amongst the staff, and former pupils of the department, whose long services, patient industry, and recognised ability, might have fairly claimed the attention of the authorities, who are responsible for the selection of the two professorial appointments only recently announced—the Science and Art department is sadly behind the other branches of her Majesty's service in efficiency. Where promotion to a higher grade on the occurrence of a vacancy is the rule, this simple arrangement becomes a fair and natural incentive to industry, and stimulates every subordinate during his long years of probation.

If no talent of the kind is to be found in the rank and file of the department, the failure of the system of Art teaching hitherto adopted in Great Britain is to be deplored, and the condition of those connected with its administration is not to be envied for the share they have taken in bringing about such a state of affairs. Are we to conclude that after thirty-five years of daily teaching in the schools professedly established for the promotion of national art industries—beyond all conception costly and incomplete—we are still entirely dependent upon the choice of some unknown foreign workman, of no special attainments, to supply the ranks of art teachers whenever a vacancy occurs at South Kensington?

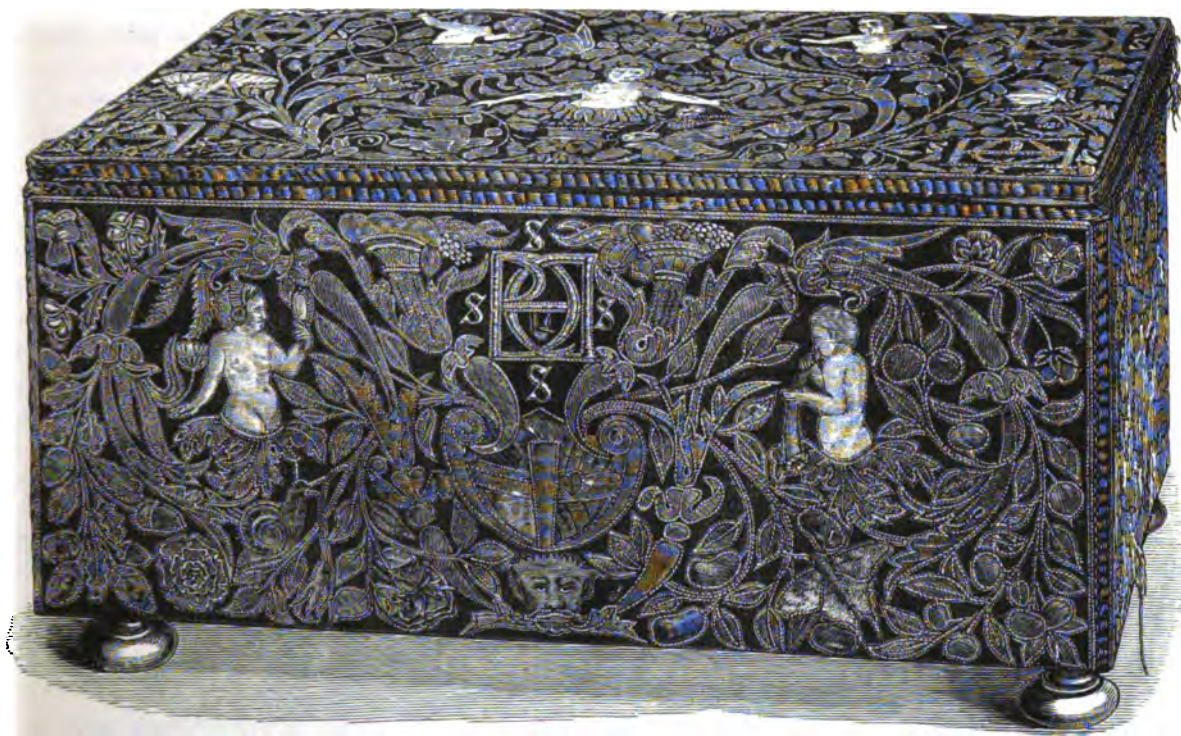
FLEMISH TAPESTRY MANUFACTURE IN ITALY.

SOME very important discoveries have recently been made, which are calculated to throw an interesting light on the manufacture of Flemish tapestry in Italy at the time of the Renaissance. An Italian artist, P. Gentili, employed in the Papal Gobelin factory, lately published a number of documents under the title of 'Sulla Manifattura degli Arazzi,' Roma, 1874, illustrating the contact of Flemish and Italian art-industry pursuits. An Alsatian *savant*, Eug. Müntz, as we gather from a communication by J. P. Richter to the 'Kunst-chronik,' has pursued these studies further; and for

this purpose has searched a number of Italian archives, and among others the newly established State Archive at Rome, into which, fortunately, a series of account books of the Papal Court had found their way. Müntz has embodied the results of his investigations in a number of monographs: 'Revue critique d'Histoire et de Littérature,' 1875, 'Bulletin de l'Union centrale des Beaux-Arts appliqués à l'Industrie,' and 'Gazette des Beaux-Arts,' 1876. These publications do more than merely supplement the work of Gentili. They form the basis of a complete history of this branch of art industry, at a time when the possession of such tapestry with historical representations, formed one of the most conspicuous articles of luxury. According to Gentili, Ferrara was the first town in Italy in which Flemish

Müntz discloses the astonishing fact that that branch of northern art industry was uninterruptedly practised and patronised at the papal court from Nicolas V. to Alexander VI. In the Vatican, it is said, there are still at the present day about 500 Flemish tapestry carpets to be found. That such should have been preserved from the time of the fifteenth century was a matter easily proved, since at the Corpus Christi festival several of them are used every year for decorative purposes in the courtyard of St. Peter's.

After Flemish ateliers had also been established in towns like Correggio and Bologna, the ateliers at Ferrara and Florence attained a conspicuous importance at the beginning of the sixteenth century. The development of this art in Florence has been elucidated by



APPLIQUÉ AND GOLD EMBROIDERED CASKET COVER. FRANCE, 16TH CENTURY.

tapestry weavers established. ateliers (1464). Müntz, however, proves that this honour belongs to Siena. From Milanese's 'Documenti per la Storia dell'Arte Senese' (ii. 180), we learn that already in the year 1438 "Renaldo di Gualtieri de la Magna Bassa, maestro di panni di Razo," petitioned the senators at that place for a "provisioncella." His petition was granted and renewed. A second Fleming followed, Giachettus Benedicti de Razzo (Arras), and engaged to teach his art gratis (1442). Shortly afterwards a countryman of theirs, Livinio Gigli de Burgis (Bruges), made his appearance in Florence (Gaye, Carteggio i. 563), and another, in Perugia. According to Gentili, the tapestry manufacture was not established in Rome till 1702. But by the publication of a number of documents of the fifteenth century,

Conti's estimable little work 'Ricerche Storiche sull'Arte degli Arazzi in Firenze.' Tapestry weavers from Flanders were engaged to conduct the ateliers at Florence, and no expense was spared to train the Florentines to become independent masters; yet, after a lapse of a generation, they were compelled again to return to the same source, and to move for about two centuries in the same circle. It does not appear strange, therefore, that Raphael's cartoons were sent to be executed at Arras, however distinguished the names of the Italian masters may have been in other respects, whose compositions were worked out in the nationalised tapestry manufactories. As ateliers of lesser importance, Müntz enumerates those of Genoa, Mantua, Modena, and Urbino.

EXPLORATION OF SAMOTHRACE.



IN 1873 and 1875 the Austrian Government despatched, at the public expense, two expeditions for scientific purposes to the Island of Samothrace—the first attempt of the kind organised by the Austrian Government. Both expeditions were under the direction of Professor Hauser, Architect, and Dr. Conze, Professor of Archæology, assisted by Dr. Niemann, Professor of Architecture, and Dr. Benndorf, Professor of Archæology at Prague. The excavations took place by virtue of a Firman of the Sublime Porte, and the scientific results deserve no less general attention than the excavations undertaken by order of the German Government in Olympia, though the results of the latter are much grander and more valuable than the much lauded findings of Dr. Schliemann at Mycenæ and elsewhere.

The Austrian Expedition, which preceded that of Germany, has been successful in obtaining for Archæological History certain and very important dates. A celebrated depository of antique art has been explored, and the period of its formation, and even the persons who originated the works were discovered, and fortunately verified.

On the 23rd of August, 1875, the expedition landed on the northern shore of the mountainous island, where the locality of the old temple—in which the excavations were to take place—was situated, and tents were pitched on the ruins for the *savants* and the workmen (more than a hundred in number), who began continuing the excavations commenced in 1873. Unfortunately, the architectural remains discovered two years previously had been demolished by the inhabitants living in the neighbourhood, who had been searching for treasures. Samothrace, a place of importance in ancient times as a pilgrimage temple and an asylum, was a sanctuary of subterranean gods, and the mysteries dedicated to them, with whose worship the buildings were closely connected, as was clearly proved by the discoveries.

Of the old town of Samothrace, which was likewise situated on the northern coast on an eminence above the temple ground, only the old surrounding wall, eight metres high and three metres broad, remains, one of the oldest and most remarkable of cyclopean architectural works.

Temple and sanctuary were found situated outside the town to the west, at the bottom of a valley on the slope of the so-called St. George's Mountain, and on its prominence. They had all been destroyed by an earthquake, as was ascertained by Prof. Conze, who had been travelling over the Thracian Islands in 1858. But on

the occasion of their destruction the upper and more important parts of the buildings, which were buried undermost, were to a very great extent preserved intact. The whole arrangement of the buildings corresponds with their religious object. The centre was situated in the lowest spot of the valley. There the substructure, including the encompassing wall, of the oldest mystery temple in ancient Doric style was found, which already in ancient times had to give place to a new building in Ionic-Corinthian style; and in the centre of the temple on the natural ground, there were three places for sacrifices with recesses, lined with stonework for the reception of the sacrificial blood, dedicated to the Chthonic gods.

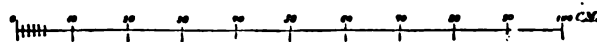
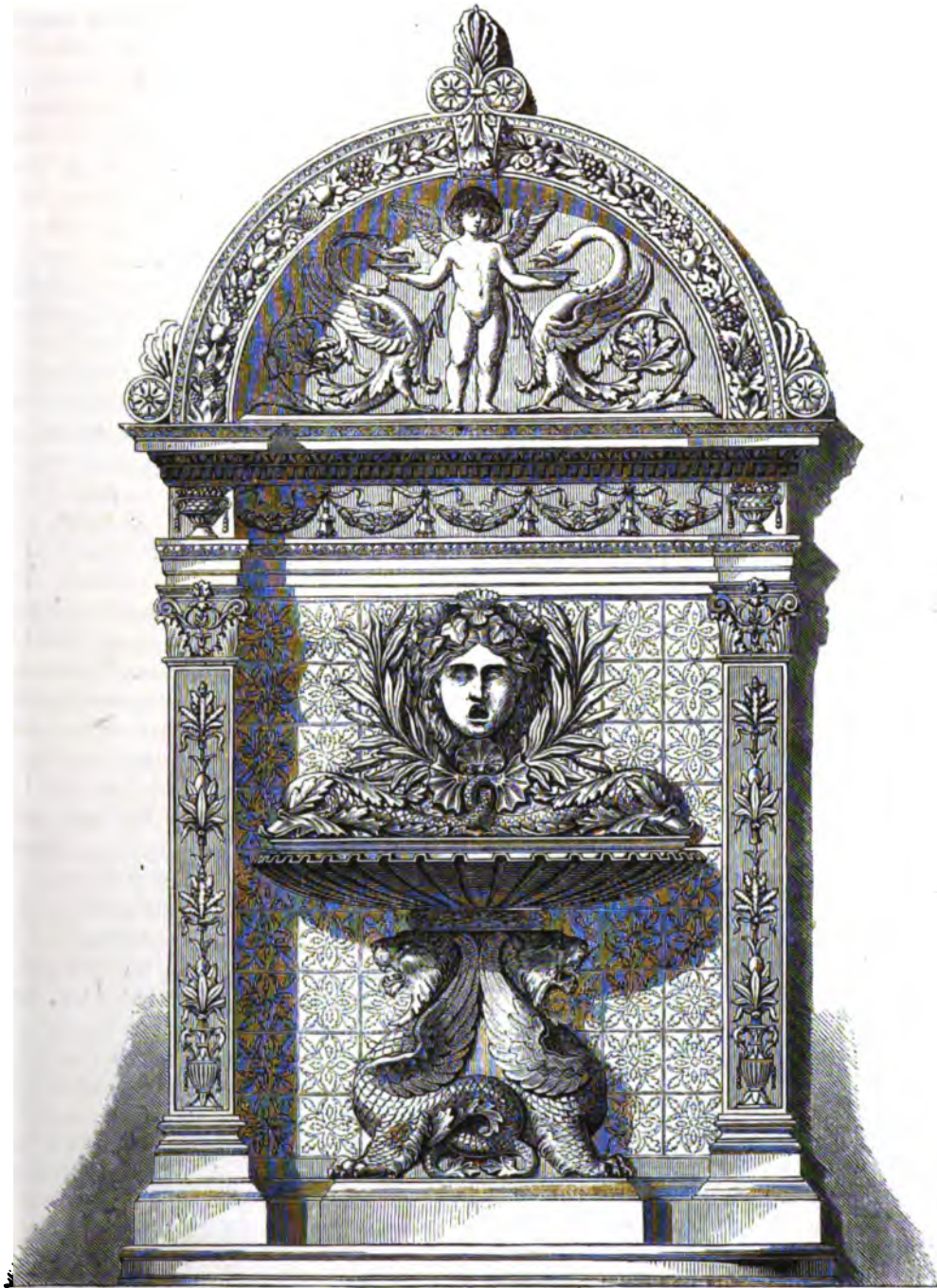
These places of offering show a very great age. Of the new building remarkable and beautiful parts of the upper architecture were found, and among these, a particularly interesting decorative relievo representing dancing females. Besides the ancient mystery temple, the foundations and ruins of a second temple were discovered, which was built when a larger space was required for the mystery rites. This temple consisted of a long *Cella*, divided by partition walls into naves, terminating in a niche in segment form, whilst in front of the *Cella* there was a vestibule formed by fourteen columns. In the *Cella* a pedestal was discovered for a group of divinities, probably Demetrius, Persephone, and Dionysus, and a large stone slab resting in front of it on the bare ground, with a recess, likewise, for the reception of the sacrificial blood. Prof. Hauser pointed out the entire deviation of the structure of this from other Grecian temples, and its striking resemblance to the Basilica form, being built in the Doric style of the Hellenic epoch, and having undoubtedly been erected by Greek artists. Under the ruins were also found the broken but, in their fragments, well-preserved figures of the group which had adorned the pediment, namely, Demetrius surrounded by figures with attributes, which point to the Dionysus worship.

Besides these, other statues were found, and among them a well-preserved Victoria.

Around the two mystery temples there stood on the hills, buildings, the chief purpose of which was to embellish the surrounding landscape. Here, too, the excavations disclosed the original plan of these buildings, besides other particulars of interest to Archæologists. As the most interesting of these buildings Prof. Hauser pointed out a double hall in Ionic style, with rich plastic ornaments on the capitals and the frieze. The most important discovery in this hall was a double inscription, stating that Ptolemy II. Philadelphus, son of Ptolemy Soter and Berenika, the second of this Hellenic-Egyptian dynasty, who was so famed for art and splendour, reigned from 286–246 B.C., and had erected this hall to the "great Gods." A tunnel-like arched aqueduct in the foundation of this hall proved that the Greek architects knew already, and applied at so early a time, the construction of the centre or cuneiform stone vaults, although they did not employ it in their magnificent state buildings. Exactly

of the same date as this hall appeared to be a round building of eighteen metres diameter, the ruins of which showed that the lower half of it consisted of simple broad stone masonry, above which rose a gallery with closed

As to the remains, Prof. Hauser praises the excellent technical execution of the stone cutting required for the circular building, and the splendid material—all large blocks of white marble.



FOUNTAIN IN MAJOLICA, BY VAL. TEIRICH.

intermediate spaces formed by forty-four Doric columns. On this building also was an inscription to the effect that it was erected to the "great Gods" by Arsinöe, the sister of that Ptolemy Philadelphus, and married to him in third wedlock.

The termination of the whole structure was discovered in an extensive field of ruins of soft limestone on the height to the west of the temples. There had stood a large hall, 103 metres long and 13 metres wide, in Doric style of the Hellenic era, in front of which the ground

was gradated terrace-like. On these terraces the pedestals and ruins were found of gift offerings and votive statues, especially the remains of a Victoria statue on a pedestal in the form of the stem of a vessel—evidently a monument of a naval victory. The other objects found consisted of inscriptions and earthen vessels.

The objects brought to Vienna embrace the most valuable finds of the excavations, although twenty-five pieces of the treasures of the second expedition were retained by the Turkish Government for the Museum at Stamboul; and they will form a most handsome and interesting collection in the new Art-historical museum of the Austrian capital.

DRAWING MODELS FOR CHILDREN.

AN excellent series of systematic drawing designs, for the self-instruction and amusement of children from three to eight years of age, has been sent to us by H. E. Wagner, schoolmaster at Copitz, Saxony. Among all the self-entertainments for children, drawing undoubtedly takes the first place; partly on account of the pleasure which all drawing and all self-productions afford, even to the smallest child. Prudent parents place, therefore, at an early age, pencil and slate in the hands of their little ones. But unfortunately these first attempts are thwarted, partly by the stiffness of the hand, partly by want of proper instruction, and particularly by the lack of suitable designs, so that what the child began with pleasure, is soon given up with disheartened feeling.

The desire to meet the subject thoroughly, and to make this pleasant means of education more accessible to the world of children, has induced the author to publish his drawings, which are highly approved of, both in schools and at home on the Continent. The following may serve to explain the use of them, and the method of drawing according to the set models.

First, the child gets the simplest rectilinear figures, and so progresses from the easy to the more difficult. Take for instance a triangle. The child puts the card-board model upon its slate, holds it with the fore-finger of its left hand, and draws with a pointed slate-pencil along the three sides; taking away the card, it will have a regular drawing of the triangle. After having sufficiently repeated this exercise, the child is allowed to dot only the three angles of the triangle, and to unite them by straight lines. Having now attained a certain facility, it goes on to the third exercise. The figure is now drawn according to the drawing model with freehand, by the eye only, and in placing the card upon the drawing afterwards, it will see if the figure is correct. The child will now be able to draw the same from memory without a copy, and thus it has acquired a clear idea of the character of the design.

This fourfold way of practice is by-and-by repeated with more difficult drawing models. Those drawing-cards which offer the child lines to draw within the outlines will not cause much difficulty, because it has the necessary points given by the outline.

The child will very soon ask for paper and pencil, whereby opportunities will be given it for further exercises in new designs; it will attempt its first experiment in painting, in cutting out, pasting down, and putting the figures together. Thus a great part of its time will be spent in a pleasant and instructive way, whilst hand and eye are trained in delineating correct forms, and the foundation is laid for further progress.

This child's portfolio of drawing designs consists of seven parts: Rectilinear figures, curvilinear figures, animals, and arabesques, costing about fourpence each part.

We have also before us a parcel of drawings on stone, on very coarse and cheap paper, from Paris, intended for the use of poor children, works of art of the very highest excellence and refinement. This bi-monthly publication, issued under the direction of J. Monroco, is entitled '*Le Petit Artiste, journal universel de la pratique du dessin artistique et industriel*,' and at the cost of one penny a sheet.

The value of the work consists in its progressive and easy stages, from the first rudimentary drawing of lines and angles, to the very highest types of ornamental design founded upon the best known classical examples; foliage treated conventionally, based upon natural forms; and the human figure, draped and nude in turn, depicted with true artistic feeling.

Contrasting these really good specimens of art with the very inadequate contrivances specially prepared for the English market and sold at our toy-shops for use in our nurseries, consisting of a frame containing a square of roughened glass, and some half-dozen ill-designed examples, we are constrained to point out the complete dearth amongst us of cheap systematic drawing lessons for very young children, in the hope, that some enterprising publisher may be induced to supply a want long felt amongst us, and never so urgently required as at the present time.

THE NEW GERMAN PATENT LAW.

ON the 1st of last month the new German Patent Law came into force, and the new Patent Office at Berlin was accordingly opened on that day, despite of its being Sunday.

This new law is by no means so perfect as it could or should have been, considering the great efforts that were made by the more active members of the International Patent Law Reform party to introduce improvements

and alterations whilst passing through the German Legislature. The new law contains such complete and precise directions respecting the granting of patents, the examinations, and cases of litigation, that other States would do well to adopt these likewise, if they really are desirous of reform on a basis of general or mutual interests, in regard to the protection of inventions.

The principal provisions of the law, so far as they are of any interest to foreigners, and particularly to English inventors, will be given in the September number.

CARL PIEPER, C.E., Dresden.

the Divine Being, &c., at the beginning. At the end were the words, "Caxton me fieri fecit." The second tract, also liturgical, was printed by Pinson, "Per me Ricardum Pinson." The third was by Augustine, but no name of printer, nor any date. The fourth, by Albertus Magnus, was printed at Antwerp, by Gerard Leeu, in 1489. The fifth and last, by Johannes Nider, was printed by John of Westphalia, but had no name of place nor date. To this volume I called attention in *Notes and Queries* for July 16, 1859, and in consequence received communications from the late George Offor and Mr. Blades.



SILK AND GOLD EMBROIDERY, DESIGNED BY JUL. LETH. ITALIAN, 14TH CENTURY.

How I FOUND A CAXTON.—During the summer of 1859, I was asked to render a little friendly aid in the compilation of a catalogue of the Congregational Library, in Bloomfield Street, City. Many curious works attracted my notice, and among them a quarto volume in ancient binding, and consisting of a collection of early printed tracts in Latin. The first item was headed, "Octavo Idus Augusti fiat Servic. de transfiguracione Jhesu Xpi. dni. nostri." This comprised ten leaves, printed in red and black, with an illustration representing

It was found that the Caxton tract was unknown and unique, and thereupon the ultimate owner of it, the late Joshua Wilson, withdrew it from the library, and had the volume sold at Puttick and Simpson's. The price realised was announced at 200 guineas, and the purchaser the British Museum. These are the facts. Nobody thanked me for the discovery, and I presume my connection with it is by this time forgotten by most people. I have never heard of the Caxton tract from that time to the present.

B. H. C.



"THE DANUBE," A BORDER FOR A PUNCHBOWL, BY O. KÖNIG.

REVIEWS.

An Nahlah (The Queen Bee), Part II., an illustrated paper in Arabic and Hindustani. Edited by J. L. SABŪNJI. Trübner and Co.

THE wide spread of education amongst the Arabic-speaking populations of Asia Minor, Syria, Egypt, Tripoli, Tunis, Algiers, and Morocco, and the growing desire in India to learn more of the wonders of our Western civilisation, have been noticed frequently of late by observant travellers, who have had the opportunity of visiting the native schools in the places to which we have referred. It is with a view to supplying a want of good pictorial representations of people and objects more immediately of interest to the vast populations of Arabs, and the equally large communities dwelling in British India and the remote East, that the able and accomplished editor of 'Nahlah' addresses himself. A long and intimate acquaintance with Syria qualifies him so far, that he knows and understands how to cater for the wants and wishes of his clients, and but for the difficulty of distributing the copies to subscribers living at so great a distance, and the equally great difficulty of collecting their subscriptions, we see no reason why 'Nahlah' should not become a most widely circulated publication, whose use would be incalculable in the future. The first number contained contributions in Arabic only, together with such suitable illustrations as the author deemed of most interest to his readers; in this second number, he has introduced translations in Hindu and English. There is a noticeable improvement in the printing of the engravings, which augurs well for its management in the future; but we doubt the propriety of sacrificing so much valuable space to the English letter-press, which might be better devoted to longer articles in the language of the people for whom its pages are intended. Already the Sultan of Zanzibar, who is noted for his progressive enlightenment, has rendered such assistance to the scheme as proves his keen appreciation of its intended benefits. The Khedive of Egypt also, who is without

doubt the greatest of the Pharaohs who have ruled over that pleasant land, will give a work of this kind all the support in his power. In the meantime, all at home who have the desire to see useful knowledge disseminated in the dark land of Africa will do well to give their support to the Rev. J. Louis Sabūnji's attempt, which, from the difficulties attending so novel an undertaking, is doubtless attended with very considerable outlay and anxiety.

Kunsthistorische Bilderbogen. Leipsic: E. A. Seemann.

We have received from E. A. Seemann's establishment of artistic publications at Leipsic, the first series, and also some proof sheets of the second series, now in course of publication, of his 'Kunsthistorische Bilderbogen,' consisting of twenty-four sheets of excellently executed specimens of Greek architecture in the Doric and Ionic styles, with details of windows, ceilings, etc.; Attic buildings; the Acropolis, theatres, mausoleums, plans of temples, tombs; and also of Græco-Roman and Etruscan architecture; Corinthian capitals; Grecian and Græco-Roman timber work, and entablatures of Doric and Ionic order as used by the Romans; Roman temple structures with details; theatres, palaces, triumphal arches; Roman tombs and Etruscan buildings, etc. We are informed that the second series will contain the antique plastic art of the time of the Romans, of the Græco-Roman art, architecture and plastic art of the Egyptians, Assyrians, Persians, Asia Minor populations; also the commencement of Christian architecture and plastic art, up to the period of the establishment of the Romano-German Empire.

The illustrations collected on these sheets have been selected from the rich store of woodcuts of Seemann's renowned establishment (some specimens of which are given in our pages), and they form excellent material for educational purposes, as well as for reference for artists, critics, art historians, literary men, and students. A separate issue of these sheets, with the text in the Dutch language, is likewise being prepared for Holland. We shall have occasion to return to this publication, which deserves to be made known very widely.

Die Griechischen Vasen in ihrem Formen- und Decorations-System, von Theodor Lau, mit historischer Einleitung von Dr. Heinrich Brunn und erläuterndem Texte von Dr. P. F. Krell.

In our previous number we called attention to this valuable and interesting work, published by E. A. Seemann, at Leipsic, the second part of which is in course of preparation. As stated in our former notice, the whole work will contain, on forty-four coloured plates, an historically arranged series of the finest and most characteristic earthen vessels from the rich collection of vases at Munich. The antique earthen vessels, which frequently in ordinary life are still called Etruscan (or Etrurian) vases, although the Greek origin of the majority of the same has long since been established, were, as Dr. Brunn maintains in his historical introduction, as regards their chief object, no works of art as such, but vessels intended for real use. The variety of this use gave rise to the difference of form, and the correlation which in many respects exists between utility and beauty naturally adapted the usefulness to the artistic form. In merely a subordinate manner pictorial ornament was added to it, which only by degrees assumed greater importance, without, however, ever entirely transcribing its dependence on the tectonic form. This close correlation between form and decoration is the basis of the ever prevailing classical type of the Greek models, and it is therefore only natural that, in the

modern attempts at elevating Industrial Art, greater attention is paid to them in different directions. Partly it was the form with its beautifully curved outlines; partly the ornaments, consisting of meanders, palm-

leaves, etc., in their rich variety, which attracted attention; partly also the *ensemble* of form and of decoration which was followed as a type, and utilised.

The practical success, however, as stated by Dr. Brunn, has hitherto been very small indeed. So long as the view is entertained, that everything depends more on the nature or character of the form than on the pictorial ornament, which offers no model for imitation for our Industrial Art *products*, and that it must be left to modern industry to invent and develop independently the suitable application of pictorial decoration of vessels; it cannot be surprising that even simple imitations of antique vessels—as their production has been attempted in some factories—are full of faults and misconceptions. For example, ornaments composed in order to be attached as handles, have been placed in the centre of the body of the vessel; and herein lies the danger that, by misconceived imitation, the correct idea to be learnt from the types of the ancients is perverted, and more harm done than good. This eventually may lead again to a disregard of the antique models altogether.

The author, Theodor Lau, a practical painter on china, has for years been in charge of the Royal collection at Munich.



ORNAMENT IN WOOD-CARVING, BY FRULLINI, OF FLORENCE.

Lutzow's Zeitschrift für bildende Kunst. Leipsic: E. A. Seemann.

The part for June contains as a frontispiece an etching by Unger from the work on the Belvedere Gallery at Vienna (publishing by Miethke), representing Teniers and the Archduke Leopold Wilhelm; an etching by Klaus, "Juda and Thamar," after an oil painting by Aart de Gelder in the Academical Gallery at Vienna, and a very interesting and well-executed copperplate print representing "Luther surrounded by his Family," after an oil painting by Spangenberg in the museum at Leipsic. To our eyes, the head of Luther is rather over-laboured, and on this account unequal to the remainder of the engraving.

A critical biographical sketch of Peter Paul Rubens, written in an entertaining style by A. Woltmann, and Part III. of the retrospective and prospective observations of R. v. Eitelberger on the historical Art Exhibition of the Vienna Academy, with an account of the works of art represented at the late International Exhibition at Philadelphia (II. Plastic Art), form the chief subjects of the literary part of the journal.*

NEW INVENTIONS.

A MERICAN CORALS.—This is a new article of manufacture, used for articles of finery and ornament, which, according to *Ackermann's Illustrierte Gewerbe-Zeitung*, look very pretty. They are manufactured by Kingman and Hodges, at Mäusfield, Massachusetts, and consist of curdled milk, which is obtained from the cheese manufactories of New York. The process of manufacture is still a secret; only this much is known, that the curdled milk is exposed to a high degree of heat, and in this state coloured, and is afterwards subjected to great pressure, whereupon the material is converted into all kinds of trinkets and articles of ornament.

PRODUCTION OF INTENSE HEAT BY THE HAND.—M. Olivier at Paris, as is often the case with new inventions, had his attention accidentally drawn to the observation of a new phenomenon, which may prove to be one of the most interesting facts in the science of heat. For the purpose of demonstrating this discovery, M. Olivier makes use of a quadratic steel bar of about fifteen millimeters diameter, and 70–80 centimeters in length. One end of this bar he presses with his right hand against a very rapidly revolving emery disk. The friction raises the temperature of the steel at this

* Professor Dr. Carl von Lützow, Librarian of the Imperial Art Academy at Vienna, has been elected honorary member by the Florentine Academy.

end, which is heated to a considerable degree (transformation of mechanical energy into heat). The left hand, by which the steel bar is held in the centre, is not in the least affected by the increase of temperature; but the right hand, holding the opposite end of the bar, is forced to withdraw in order to prevent its being scorched by the accession of intense heat created by the friction.

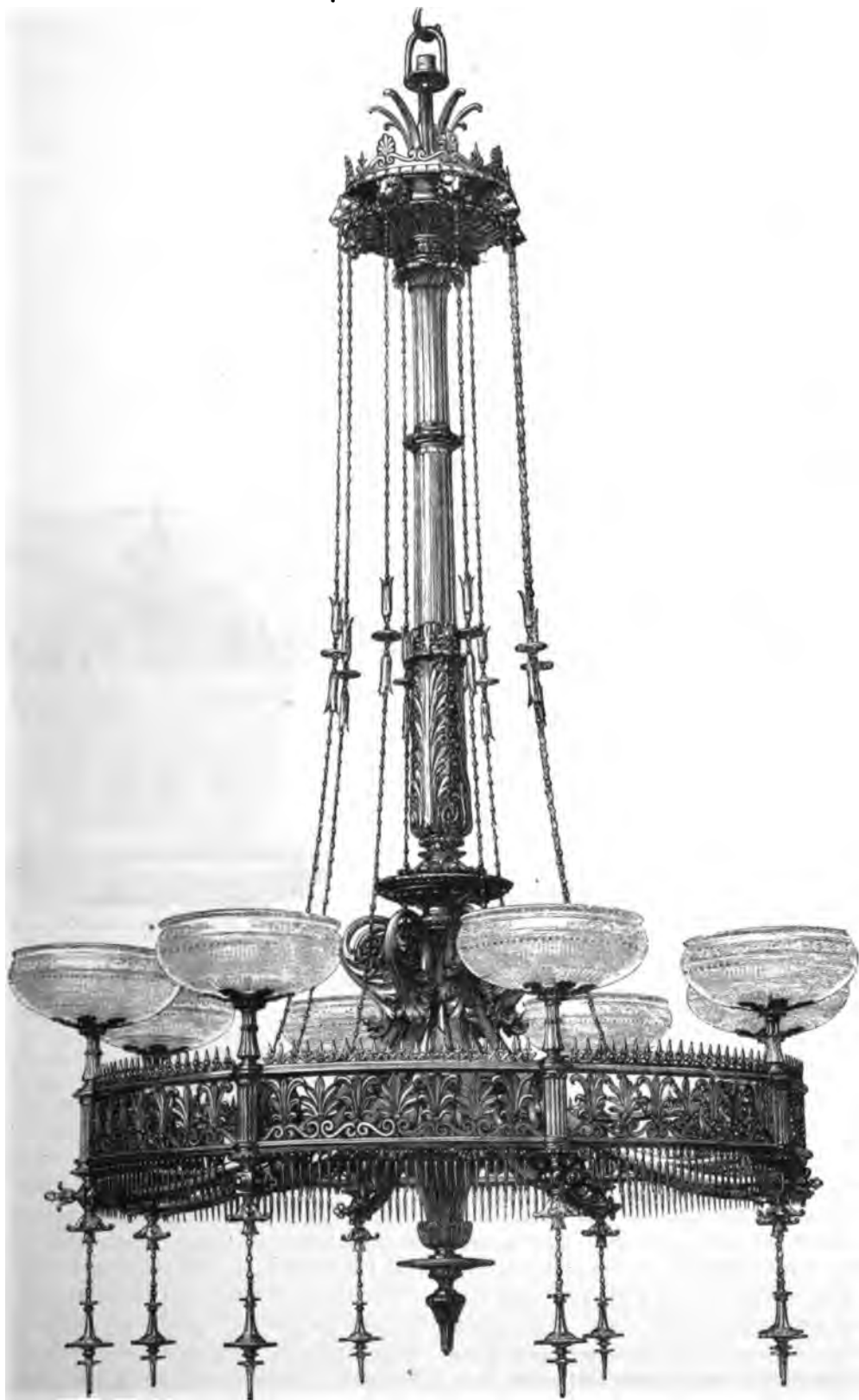
This fact, paradoxical as it may appear, is, however, easily explained.

The heat by which the hand would be burnt is by no means the effect of the increase of temperature which is produced at the other end of the bar, and is not gradually extended (by conduction) from that point, but arises at that end of itself; for it is an established fact, that motion and heat are synonymous; every arrested motion, *i.e.* mechanical energy, is transformed into heat, and in a converse manner heat may be changed into motion.



DECORATION FOR THE SUMMIT OF THE VIENNA EXHIBITION.

During the experiment under observation, the steel bar is heated by friction on the emery disk, and at the same time placed in a state of vibration. But when a bar or rod makes longitudinal oscillations, nodal points will be produced, that is, places where no vibration of the matter or substance takes place at all, but remains absolutely stationary and at rest. At the end opposite to the disk the steel bar is in a state of vibration, whereas in the centre of the same an oscillation node is formed, that is to say, a point at which all vibration ceases. The hand intervening at the end of the bar arrests or intercepts the vibration, and, since an active force or energy cannot be lost, the oscillating motion is transformed into heat of such intensity as to scorch the hand. In the centre of the bar, however, no oscillation takes place, and as a consequence no increase of temperature. What, moreover, appears strange is that a thermometer placed near



CORONA LUCIS, DESIGNED BY H. CLAUS FOR MESSRS. HOLLENBACH AND SONS, VIENNA.

the end of the bar previously held by the hand will show no particular rise in the temperature when the hand is withdrawn, because the vibrations are not intercepted, and consequently no heat is propagated. In order to generate heat, the end of the bar must be absolutely held firmly by the hand, and thereby the conduction of the oscillating waves retarded. It is therefore quite correct to say that in the experiment here described the heating of the steel is produced indirectly by the hand, and this may probably be the only instance, that by a simple gripe of the hand a temperature of about 100° Celsius is produced in an iron bar.

A NEW INSTRUMENT FOR MEASURING DISTANCES AT SEA.—The Danish naval commander, M. Middelboe, has invented and constructed an apparatus by means of

which the distance of a floating object can be measured from board ship. The instrument in the main resembles one of the light telescopes used on board a vessel, and a single person can pretty approximately estimate with it a distance of more than 3000 meters, so that it proves to be very useful for artillery purposes. Without preparatory practice a distance can be measured in less than twenty seconds; and if the observer should come to an understanding, in a manner provided by him also, with the gunnery officer, a shot can be fired the moment after the observation has taken place. The instrument has already been tested in the Danish navy, and the experiments have turned out so satisfactorily that a practical solution seems to have been found of a highly important question in naval warfare.



WOOD-CARVING BY ANTONIO BARILE, 16TH CENTURY.

NOTES.

PROFESSOR HUXLEY, at a dinner given by the Chemical Society this season, made a characteristic speech, in the course of which he claimed for the Royal Society a sympathy and support of which it never stood more in need. It originally began for the encouragement of research—for pushing farther off the barrier which surrounded the knowledge of nature. It grew and prospered, and after a time it threw offshoots, which acquired an independent existence, such as the Linnean Society and fifty others which he might mention; and the result was that all the learned societies, instead of acting in antagonism to each other, formed one great corporation, in which the circulating medium was principally brains and ability. Some years ago he was a member of a Royal Commission, one of the recommendations of which was to his great surprise acted upon. The professor then alluded to the government grant in aid of research, and the difficulties which had been experienced in its distribution, one gentleman alone having asked for 3000*l.* out of the 4000*l.*, and he said that some of the applicants reminded him of the Irishman who requested the government of the day to give him an appointment, whether in the Church, or the army, or the navy, or the Civil Service, confessing that his sole qualifications, so far as he knew them, were an inexhaustible fund of animal spirits and a keen sense of humour. There were two conditions which should be observed in administering such a fund; one, that there should not be the slightest eleemosynary taint; the other,

that there should be a very careful sifting of the claims of the applicants. He added his belief, that if these conditions were, fulfilled the grant would be of very great value to science.

CEYLON has voted fifteen thousand pounds, as a contribution towards defraying the cost of the Colonial Museum to be erected upon the Thames Embankment. We hope the other dependencies of the British Crown will follow suit.

THE École des Beaux-Arts of Paris has only quite recently opened to the public and to students its lofty galleries, containing three thousand specimens of casts in plaster taken by skilled workmen from the finest known subjects of Classic and Mediæval Sculpture, including statues and fragments of statues, and some choice bits of architectural ornaments used in Greek and Roman temples. These casts have been collected from the various depositories in France, where their use was not so available as it would be when they were brought together for the purpose of comparison and study.

Our British Museum, like the Louvre, although less rich in sculpture, does not profess to display copies of works of art; and the museum at South Kensington does not care to exhibit classic work of *any kind*, except some few examples in marble deposited there on loan, or bequeathed by persons ignorant of the scope of that institution. The public at present have no access to works of classic art, of the Florentine or Greek or Roman schools, with which every one is supposed to have at least a general acquaintance; and London to-day is without a gallery of classic art, where sculpture might be studied for artistic or historical purposes.

It is mainly owing to this indifference for classic sculpture amongst us, that we must attribute the silly display of enthusiasm on the part of English tourists, when surveying the treasures of Florence or Rome for the first time. It is to this ignorance of art in its highest form, that we must attribute the extreme indifference of the public to our hideous street monumental art, and the apathy manifested in regard to the painfully grotesque statues which mar the otherwise pleasing effect of the open spaces near the Houses of Parliament.

It is to this want of culture in our studios at the present day, that we must attribute the utter and complete failure of the second batch of competitors who strove for the Byron testimonial prize; a competition so bad all round, that it filled beholders of every class with dismay, whilst it had the effect of dispelling whatever fears we might have entertained of any selection being made on this occasion. Had we a museum of casts from the antique in London, in a few years the public would be able to comprehend the wide difference that exists between the art which produced the Germanicus, and the absence of art which makes us tamely submit to the Palmerston; or to consent to the decision of a committee who, because a model is less glaringly faulty than its neighbours, inflict it upon us, and take no thought for the opinion of the coming generation.

A FEW months ago the Mercers' Company resolved to form a committee, having for its object the advancement of technical education throughout the country, addressing themselves to the Drapers, Fishmongers, Goldsmiths, and Clothworkers. These companies in turn promised to contribute 2000*l.* each towards the project; the Armourers and Braziers followed with annual gifts of five hundred guineas each, and the less wealthy but equally interested Plasterers fifty guineas. The Vintners and Ironmongers also gave in their adhesion; then came the Salters and Dyers, with the Painters', Coopers', Shipwrights', Weavers', Loriners', Spectacle-makers', and Glass-sellers' Companies. The committee has been formed, Lord Selborne acts as chairman, and Mr. F. J. Bramwell, prime warden of the Goldsmiths, acts as vice-chairman. The secretaries of the Drapers, Mercers, and Clothworkers have the conduct of the business, and it is to be hoped, now that the officious interference of busibodies is put to rebuke by the recent parliamentary rebuff they so justly merited, the companies will set about to adopt such measures as their practical business knowledge will suggest for the furtherance of this great undertaking, so pregnant with blessings to the nation.

"AN exploration of the ancient Italian city of Sybaris is projected, in the autumn."—*Academy*.

It may be remembered by students of Aristotle, that this city, which was six miles in circumference, was densely inhabited by a population whose wealth and over-refinement led them into every kind of luxurious excess, their very culture gained for them an unenviable notoriety amongst their more robust neighbours of Crotona, who compassed their destruction in the year 508 B.C. It being known that their very horses were trained to dance to the sound of music, when the time came that the two armies met in battle array for the last time, the military bands of the Crotonians were so placed, that, at the moment of advance, they struck up the dance music to the sound of which the cavalry horses had been accustomed to practise their most complicated figures, and during the terrible confusion which ensued, the Crotonians ran in, sword in hand, and did not desist from the slaughter until the last Sybarite had yielded up his life.

THE latest reports which have reached us on Sybaris, make mention of fresh and important discoveries, amongst others that of the Hera temple, a Doric building with surrounding pillared hall and stairs. Some columnar tympanums with twenty grooves, and parts of the cella wall, from two to three meters in height, are still standing; the capitals are of antique form; the width of the bottom step measuring 19'95 meters. The identity of the building is proved by the discovery of a statue in Parian marble, of which Pausanias makes mention in the *Heræon*. It represents Hermes in his youth with the little Dionysus on his left arm—a work apparently by Praxiteles. The statue was found in the cella lying on its face, as it had fallen, close to the previously discovered great statue of a royal matron in Roman vestment. The right arm and the legs below the knee of the Hermes statue are missing; also the upper part of the body of the child. The head, however, has been found complete, undamaged. The figure of Hermes, standing in a sluggish attitude, rests with the left elbow on the stump of a tree, which is covered by the mantle that has been thrown off. The raised right arm seems to have been holding a bunch of grapes in the hand. The height of the figure is 1'80 meter. The composition reminds one strongly of the group of Cirène and Plutus in the Glyptothek at Munich. A part of the robe, hanging down in grand folds, is formed out of a separate piece of marble and fixed to the figure. The surface of the whole is in a state of faultless preservation. Secondary parts, such as the hair and the back, are negligently executed. Red colour is visible on the lips and in the hair. In consequence of this important discovery, great pains were taken to lay bare the temple of Hera before the conclusion of the excavating period. Besides, in advancing the diggings towards the east, some smaller fragments of the group of the eastern gables, namely, a left foot covered by a garment, an arm, and an important piece of the face of Pelops (the forehead and the eyes were found). At the same place the long sought for top block of the pedestal of the Victory, with the pretty corona and the hollowed standing-place for the rock, was found. No trace, however, has been discovered of the numerous and mostly very ancient sculptures mentioned by Pausanias to have been in the temple, besides the Hermes statue, and the above mentioned female figure in Roman garments. The cella is quite empty, and only traces on the ground indicate the places where on the right, and on the left, rows of statues have been standing close together.

THE excavations at the Byzantine church have at length been successful in laying bare the broad entrance sill (threshold), measuring 4'50 meters, on the eastern side of the antique building (? the Hippodaurion). Of inscriptions one has been found relating to Philetarios, the son of Attalos I., on a monument erected for him by the Athenians.

CONSIDERABLE progress has recently been made in the rich external architectural decoration of the new theatre at Augsburg, which was roofed in last autumn. The principal façade, upon which large Pegasus groups will be placed, is being constructed of fine marbles, and at the sides, the busts of the most distinguished poets and musical composers will shortly be installed in their places. The whole building will form a great ornament to the Jüngerstrasse, with its exceedingly pretty terrace gardens. The interior decoration of the theatre is likewise very far advanced. The ceiling is being ornamented with pictures and magnificent plastic ornaments; the decorations of the stage will be executed under the direction of the celebrated court theatre painter, Angelo Quaglio, at Munich, whose reputation is a guarantee

for first-class artistic productions. The painting of the drop-scene has been entrusted by the magistrate and town council of Munich to A. Eisenmenger, Professor at the Imperial Art Academy at Vienna. The subject of representation will be : "Æsop reading from a column of a well his fables to the assembled people." Around the sage the notabilities of the place are seated in the cool of the evening, their daughters, servants, and slaves being occupied in filling their pitchers amidst merriment and play; herdsmen bringing thither their flocks, and the wanderers passing the road halting or resting at the refreshing waters. At this scene Æsop avails himself of the opportunity of reading to the assemblage, which has been collected partly by social inclinations, and partly for rest and refreshment, his fables for entertainment and instruction. It is expected that the building will be ready for the commencement of theatrical performances by November next.

SCHILLING'S Bacchus and Ariadne, for the new Royal Court Theatre in Dresden, is said to be the finest example of bronze casting which has been produced in the celebrated brass-foundry at Munich. The size and the weight of the group, as well as of the team of four panthers pulling the chariot, are so extraordinary that the details are worth recording. The weight of the whole is 300 cwt.; each of the four panthers weighs about 25 cwt., the chariot 100 cwt., Bacchus 50, and Ariadne 40 cwt. There are, besides, the plinth and what belongs to it, and the equipment of the vehicle. The height of the whole work is 10 ft. 6 in. Ferdinand von Müller, jun., will personally conduct the erection on the frontispiece of the theatre.

THE Bavarian Museum of Art and Industry at Nuremberg is making arrangements for holding an Exhibition of ancient and modern objects of German works of Industrial Art, relating to book and art printing; it is announced that this Exhibition will be open from the 2nd of September till the 7th of October. Large contributions are expected to be sent from Austria.

AN Exhibition of productions of art, science, and industry for youth, is being held at Dresden, from the 15th of July to the 15th of September, which is stated to embrace educational appliances for schools, infants, gardens, and institutions for children; also school books and publications for the young, with toys and various other articles used by children.

"ONE of the finest pieces of glass of the 'Renaissance style' that we are acquainted with," says Philippe Burty in his *Chefs-d'œuvre des Arts Industriels*, Paris, 1867, "is at Beaumont-le-Roger, a small town in Normandy, done by some decorator of the Fontainebleau school. The small circular pane of glass enclosed in its leaden frame, and measuring some 9½ inches, is of the rarest ingenuity of touch and design: it represents the Angel of Destruction at the Judgment Day." That is to say, there is a figure of a female riding upon an elephant, blowing a trumpet, at the sound of which the dead are raised up from their graves; the advancing figure leaves nothing but sorrow and desolation behind; whilst the landscape in front is composed of smiling lawns, verdant foliage, and castles and fine buildings, which are perfect, and as yet intact. Beneath the feet of the elephant, a figure of a turbaned female is lying prone in the dust; this figure holds a skull in the left hand, and a pair of shears in the right.

That this rare work of art is one of a set, there can be no doubt, for the subject would identify it with that series

known as the 'quatuor novissima,' or Death and Judgment, Heaven and Hell, so often treated by the mediæval artists. Now only quite recently, another stained glass, of the same size and absolutely by the same hand, has "turned up" in the most unexpected manner; for the present we will content ourselves with a slight account of it, intending to give in our next number an engraving of both. This newly found companion to the specimen already known and described by the accomplished author to whom we have referred, represents the same landscape and accessories, but in this, a female figure (*Mors* is feminine), holding a skull and shears, and wearing the same form of turban, is mounted on a water buffalo, in form exactly resembling those wild-looking animals figured by the special artists of the illustrated papers who are with the Russian head-quarters on the Danube. Beneath her, is the prostrate form of a beautiful maiden, clad in the costume in which Mantegna clothed his female figures, whilst broken pillars fill the space occupied by the graves at the "last trump." Of the mode of treatment, and colouring, and of the evidences of great age, the glass grown iridescent from long exposure, and the oxidised leaden frame, we will speak on the next occasion.

LIST OF ILLUSTRATIONS.

	PAGE
Panels containing portraits of M. Angelo and Bramante da Urbino, in Limousin enamel, designed by H. Macht, Vienna	33
Facsimiles of coins of William I. and Henry VII., from L. Jewitt's 'Half-hours with the English Antiquities'; by permission of the author	33
Iron Casket, from the Stollberg'schen factory at Ilseburg	34
Initial C, by G. Tory, Lyons, 1551	35
Stained glass window ('Philosophy'), from the Vienna Exhibition	36
Initial T, by Laufberger	37
Armchair, designed by Schmidt and Sugg, Vienna	38
Tapestry, designed by Fischbach, and wrought by Hochstätter and Son, Darmstadt	39
Silver Jardinière, designed by Meyer and Co., Darmstadt.	41
Concert piano, by J. Ibach and Son, Barmen (Prussia)	42
Terminal, dated 1529. French	43
"The Rhine," designed for a punchbowl border, by O. König	44
Initial O, Paris, 1572.	44
Beaker, from a drawing by Widmann, modelled by M. Spiers, executed at Count Thun's manufactory, Klösterle, Bohemia.	47
Prizes won by amateurs at the Second Annual Exhibition of China Painting	48, 49
Initial A, after Albrecht Dürer	50
Casket cover, worked in silks and gold embroidery; France, sixteenth century	51
Majolica drinking-fountain, designed by Val. Teirich, Professor, Art Industry School, Vienna	53
Silk and gold embroidered cloth. Italian; fourteenth-century work; designed by Jul. Leth	55
"The Danube," designed for a punchbowl border, by O. König	56
Ornamental wood-carving by Frullini, of Florence	57
Crown, forming the summit decoration of the Vienna Exhibition building, 1873	58
Corona Lucis, designed by H. Claus for Messrs. Hollenbach and Sons, Vienna	59
Border in wood-carving, by Antonio Barile, sixteenth-century work	60

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INDUSTRIAL ART:

A Monthly Review

OF

TECHNICAL AND SCIENTIFIC EDUCATION AT HOME AND ABROAD.

CONTENTS.

WILLIAM CAXTON—TECHNICAL EDUCATION IN ENGLAND PAST AND PRESENT—LYONS SILK—NAVAL EDUCATION—CONSERVATOIRE DES ARTS ET MÉTIERS—NOTES—REVIEWS—NEW INVENTIONS.

ILLUSTRATED WITH FORTY-TWO WOODCUTS.

LIST OF ILLUSTRATIONS.

Border designed by Professor von Lützow, of Vienna.

Ancient Printing Press.

Fourteenth and Fifteenth-century Book Covers, from the Collection of W. J. Loftie, Esq., Author of "Art in the House." Macmillan and Co., 1877.

Book Cover designed by Professor Storck and Professor Laufberger, of the Museum of Art Industry, Vienna, with Medallions in painted enamels, in the possession of the Archduke Rainer.

Chair designed by Schönthaler.

Triumphal Arch of Titus, Rome (A.D. 70).

Wardrobe in walnut wood, from the Vienna Exhibition.

Faience, designed by Geoffroy and Co., of Gien, France.

Head of Æsculapius, from the British Museum.

Casket, designed by Albrecht Dürer.

Narcissus (?) found at Pompeii in 1865, now in the Naples Museum.

A fine copy of this elegant work in bronze may be seen at Goupil's Art Gallery, Bedford Street, Covent Garden.

Panel designed by F. Schönthaler, Sculptor.

Panels by Draechslor, Architect.

Cabinet, early Seventeenth Century, from Loftie's "Art in the House."

Vase (designed at Doulton's Lambeth Potteries), on view at Messrs.

Howell and James's, Regent Street.

Tabouret, by Haas, of Vienna.

Façade, from Seemann's "Kunsthistorische Bilderbogen," of

Monument at Telmyssos (400 B.C.).

Solitaire designed by Bellezza, of Turin.

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A Terminal Ornament by F. Schönthaler.

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Medals in Lead, used during the Fourteenth and Fifteenth Centuries by Members of some of the Paris Trade Guilds.

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strides towards perfection. It is to be hoped that Englishmen, and particularly the Government, the School Boards, and the Corporations, will lay to heart these lessons of continental experience, and extend further encouragements to industrial Art and technical education in all its branches. It is quite absurd, in face of the enlightened progress of continental nations like France, Germany, and Austria, to form our models upon the out-of-date technical schools of Switzerland, yet this is what is being done every day in England.

In the August number of 'Industrial Art' we noticed the fact that the Yorkshire College of Science had sent a deputation abroad to report on the present system of weaving, and upon the weaving schools of France, Germany, and Austria. We consider this to be a hopeful sign of the times; a sign that English manufacturers and teachers are at last aroused to see that our land is

altogether behind the age in questions of this class, and that England is the very last among the nations to establish cheap, popular, and useful education for the hands as well as the brains of her children.

Keighley not long since made itself conspicuous by its resistance to the law of the land; it has now well-nigh rendered itself famous by its compliance with the law of progress, in connection with the art industries of the country. We have to thank Mr. Walter S. B. McLaren, M.A., of Keighley, and Mr. Beaumont, an instructor in the Yorkshire College of Science, Leeds, for an admirable report, embracing not only weaving, but other branches of technics. It is published for the Clothworkers' Company, which has established and endowed the college. The desire of the Company is that the weaving school at Leeds should be equal to the best on the Continent, and should be efficient enough to give a thorough technical education in every branch of weaving to those who attend it. We read the report through carefully, shortly after it appeared, and were deeply interested in it, and laid it down, sighing to think that beyond a few persons specially interested in the work, no one would possibly ever hear of it. It seems, however, to have brought forth fruit, for Glasgow has established a school for the teaching of weaving which promises to be a great success. Why should not such an admirable and clear-headed plan of arriving at a just conclusion with respect to continental progress be adopted elsewhere? So far as we can see, there is no better way of knowing the truth than that of sending keen-sighted, practical, educated, technical men to other countries, to report upon their various industries and profit by their experience.

Months and months ago the City companies announced their determination to found a technical university, with

to prevent infiltration of moisture; that the roots of dangerous trees are removed; that the upper portions of the walls are grouted with concrete, and fallen stones reset. Thus, rent and tottering walls have been made good; arches long built up have been reopened; fences and gates have been repaired or supplied where wanting, and the noble tower, or bell-house, of Glendalough, which was on the very verge of falling, is now in such a condition that, having already stood eight hundred years, there is no reason why it should not stand eight hundred longer.

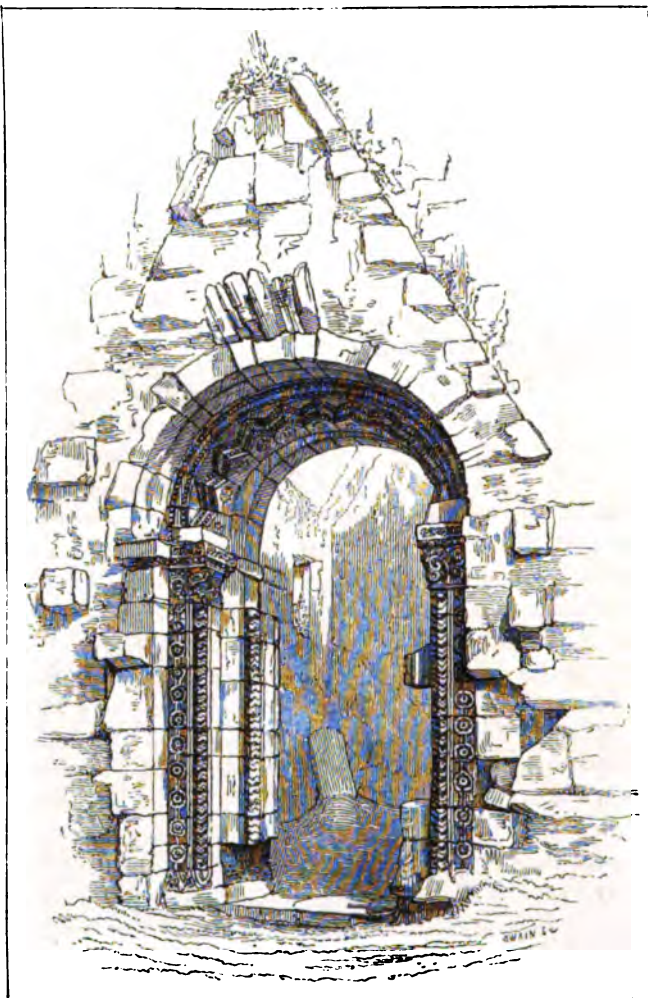
The other work involved in these labours, that of digging and clearing, has already led to much valuable discovery. Within these buildings lay the accumulated rubbish of centuries, débris that tells the story of the rage of the iconoclast of former times, or the still more mournful indifference of the present day that leaves these sacred temples to be turned to cattle sheds.

In the necessary clearing away of such sad growth, and the levelling of the church floors, discoveries of no small value have been made. At Glendalough alone seven windows have been unearthed, one belonging to the little church upon the Rock, or Tempul na Sceilig, the other six to the beautiful Irish Romanesque church of St. Saviour's; the decorated chancel arch of the same building; the staircase leading to the upper chambers in the roof; the foundations of another church; the stones which formed the conical roof and apex of the bell-house; one entire high cross richly sculptured, with the shaft and base of another; carved tombstones, one bearing an Irish inscription, and an ancient road or causeway, leading from one of the two lakes to the church of the rock. At Devenish, crosses and sculptured stones have been found and put in a place of safety; at Monasterboice, a third of the termon, or high crosses, has been found and set up again.

So far we may gladly say of Mr. Deane's work that it is good, and in almost all cases certainly done with no unnecessary restoration, though we confess that, when

reading Mr. Deane's report, the following questions suggested themselves:—

- 1st. In the case of Cormac's chapel at Cashel—was it absolutely necessary, for the preservation of the building, that an arcade at the east end of Cormac's chapel should be restored; or, again, another arcade, restored in like manner, at the north side of the chancel?
- 2nd. Was it necessary to restore the side chapels of the north transept, and why recommend the restoration of the Vicar's Hall at Cashel, which work would involve an expenditure of funds meant solely for the preservation of such monuments?



ST. FARANNAN'S CHURCH, DONOUGHMORE.

- 3rd. In the case of Ardferth cathedral—was it necessary to build a flying buttress against that outer portion of the south wall which within contains an arcade of nine arches of exquisite grace and beauty? If the danger of the wall falling outwards was imminent, could it not have been bound together by iron bands, or was the wall in so utterly ruinous a condition that the ties could not have been safely fixed? Was every effort made to avoid the disfigurement of a modern buttress?
- 4th. It is stated that in some instances "a sod coping" has been placed to protect the walls. How, we should ask, has this coping served as protection? At first sight it seems as if it would rather imbibe and retain moisture than throw it off.
- 5th. What are the distinctive names of the buildings at Devenish to which Mr. Deane refers when he speaks of "a more ancient church," and "an ancient church,"

"a round tower," and "the tower"? It would save much confusion in writing of the ecclesiastical ruins of Ireland if the term "bell-house," used by the annalists of the country to distinguish a certain class of tower, were brought into use again.

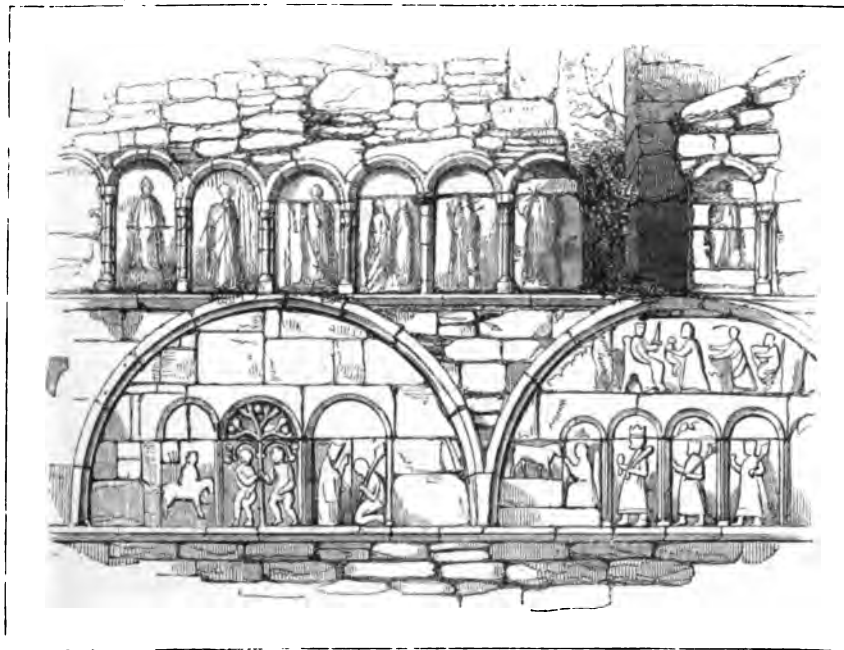
In the difficult but necessary task of pointing the walls, we hear from those who have seen Mr. Deane's work, that admirable care has been taken to avoid disfiguration by keeping back the cement in the joints from the face of the wall, as well as by toning down its raw fresh colour.

The question as to the instances in which it is or is

not legitimate to remove features which do not belong to the original building, has come before Mr. Deane twice in dealing with Cormac's chapel. The first in the case of the two windows in the south wall of the nave; the second, that of the wall which partly concealed the fine doorway of the same building. In the first instance, he decided on leaving the more modern windows, and his reasons for doing so can be understood when we read his questions as to whether such changes may not "mark certain epochs in the history of the building, indicative of habits and customs, times of peace and war, which add a charm and tell a tale which a more perfect structure would fail to do." In the second instance, the later work was removed for the very justifiable reason that it concealed a great part of the finest portal of the chapel. A like fine distinction had to be drawn by Mr. Deane in dealing with the lancet windows of the cathedral of Cashel, the

in Kerry, and traces of his labours seem to us still visible there.

The churches in Kerry, such as Kilmalkedar, Church Island, and Inisfallen, as well as those in Tipperary, of Cashel and Donoughmore, all seem to belong to this period. The doorway of the last-mentioned church with its simple canopy is here illustrated, and when compared with the earlier Romanesque churches, such as those of Lough Derg and Lough Corrib, it will be seen that some novel elements in design are certainly visible in them, while the native genius of the country has stamped them with its exquisitely simple and archaic character. Speaking of the Virgin's church, at Ardmore, Mr. Deane draws attention to the existence of a certain classic element, most perceptible in its mouldings and quoin shafts, although pervading the entire building, which we have already noticed as characteristic of other works of the



WESTERN ARCADE FROM ARDMORE.

filling of the lower portions of the lancet windows was taken out, but the curtailing done in the fourteenth century was left untouched.

The point that gives us most pleasure in reading Mr. Deane's report, is the assurance it conveys that the Virgin's church, or Tempul na Hoighe, at Ardferit is now in a condition of safety. It is in some ways the most interesting example of Romanesque we have met with in that country. This style, which seems to have reached Ireland through France about the year 1000, while as it were assimilating some native forms of art that had prevailed there long centuries before, seems to have received renewed life from its original source in the lifetime of St. Malachy, the friend of Bernard of Clairvaux and Cormac king of Cashel. After his stay at Cashel, Malachy and his followers retired to the wilds of Iveragh,

best Irish period. The evidence of such a quality in the art of this country strikes us as peculiarly interesting, at a time when from her schools went forth teachers, the spirit of whose philosophy has been described as touched and quickened by Hellenic thought.

These observations are only made in the hope of confirming Mr. Deane and his employers in their sense of the importance of their charge. The historical interest of these monuments it is but vanity to allude to, until Irishmen can show that their country's history is such as to awaken our respect and interest. But no history has as yet been written of Ireland, while she still retained that national freedom without which there can be no true development in art. Let us now take heed that when her true historian does arrive, those monuments may not have disappeared that would stand as witnesses to his words.

The labours now undertaken by the Board of Works should not be allowed to stop till the task is accomplished which they have so well begun. In a country thick-sown with monuments of the past, the number they have named to be preserved is small indeed. The writer is familiar with the names of upwards of forty decorated Irish Romanesque churches—thirty of which yet remain uncared for. The earliest example we are acquainted with of this style, is the church of St. Caimin on Holy Island, Lough Derg, now on the verge of falling. Of this a beautiful painting showing its present condition has been made by Mr. Watkins, of Dublin. Ruins, more or less precious, of eighty-four bell-houses may be seen, six only of which have been placed in a condition of safety. There is no list of the sculptured high crosses of Ireland, but the names of thirty-two are now before the writer, most of which are utterly neglected, many lying prostrate among the brambles and nettles that overgrow the sanctuaries they used to guard. So with the monasteries, anchorite cells and early churches; while of the prehistoric remains, tumuli, cairns, cromlechs, stone circles and pillar stones, nothing is known.

If, in conclusion, we may offer a suggestion, it would be that the work of preservation can hardly be worthily carried out until descriptive catalogues of each of these various classes of monuments be prepared. Such lists could be more or less perfectly drawn up by reference to the letters on the Antiquities of Ireland by the officers of the Ordnance Survey, now preserved in the library of the Royal Irish Academy.

PROVINCIAL MUSEUMS.



FORMAL mention has already been made of the deputation of Mayors of Provincial towns who waited upon the Royal Commissioners of the Exhibition of 1851, to solicit advice and assistance as to the formation and promotion of provincial Museums of Science and Art. The agitation for this purpose has been some time in existence. Months ago a most successful meeting was held in Birmingham, and afterwards the mayors of the provinces met in London, under the presidency of the Mayor of Birmingham, and a deputation was appointed to solicit the Prince of Wales to consider the question in full.

In urging the matter upon the consideration of our

readers, we are fully aware that no plan can be successful which, emanating from the few, is not taken up spiritedly by the many. This objection would have been fatal to us had we advocated the scheme some time ago, but now—though somewhat tardily—our industrial centres have recognised the necessity of educating their townfolk and encouraging local talent in science and art.

Mr. Charles Dudley Warner, in one of his delightful essays, in the collection called "Backlog Studies," speaks about the conceited people who insist upon lighting a fire underneath, condemning them as persons wedded to their own way. Of course it is quite true that knowledge works down easier than it does up, and it is also to a certain extent true, that education must proceed from the more enlightened down to the more ignorant strata; but it is no less true, that except you get the people to feel a want, they will not help you to supply it, and that unless they recognise a defect, you can neither coax nor force them to apply a remedy. Illustrations of the truth of this are not wanting: witness the very demonstrative inhabitants of Lambeth, not long since, when appealed to, to support the scheme for a free library and reading-room; the ratepayers protested *en masse*, and the project at once fell to the ground. However, with respect to the question of art and science museums for provincial towns, it can no longer be said that the general public is in a dead-and-alive condition. The interest of all classes is aroused over the whole country.

If it were a simple expression of general interest, this ought to be sufficient to stimulate the heads of departments, the chiefs, Royal Commissioners, and other authorities connected with the subject, to supply the demand, to some extent at least. But this is not all; the county-towns have other claims upon the metropolis beside this. Amongst the many reasons why the Government and the Commissioners of the Exhibition of 1851, as well as the Trustees of the National Gallery and British Museum, should endeavour to assist the scheme, there are a few that merit special attention. When it was first proposed to have an Exhibition in 1851, the provincial towns were neither slow nor lukewarm in their promises of assistance, nor in the performance of those promises. In fact, it is almost true, that but for the material co-operation of the manufacturing centres, the carrying out of the plan would have been an utter impossibility. The metropolis, finding the site for the Exhibition, did not subscribe more than half the required guarantee fund. As a simple matter of justice, therefore, the provincial towns are entitled to their fair share of the realised surplus. It would be impossible within the limits of this contribution to tabulate the amount of money supplied by each town. It may be sufficient to state that Manchester alone contributed something about £50,000 to the undertaking.

Again, we must remember how deserving of support and encouragement the populations of these towns are. We have here no inert mass to deal with—no "*profanum*"

vulgus"—that we can afford to pamper, or disdain at our pleasure. We have thousands of intelligent men and women, with local leaders of the highest culture, who know how deserving their case is, and bring it forward enthusiastically. What can afford ampler proof of this than the independent exertions made in Birmingham, Bradford, Leeds, Liverpool, Manchester, Salford, and Sheffield, as well as in such centres as Coventry, Derby, Kidderminster, Leicester, Swansea, and Worcester; we might add to this list Newcastle-on-Tyne, Bristol and Nottingham. In all these some advance has been made for the educa-

succeeded, Mr. Ruskin notwithstanding. But it seems invidious to make a selection of names from the host, when all are constant to their duty and heroes in its cause.

Another very pressing reason for giving immediate assistance to these provincial towns, is that the local institutions, though flourishing, are very necessitous. Under the Free Libraries and Museums Act, the only permanent source of income for the maintenance of such collections or exhibitions is a penny rate. This is quite insufficient for the intended purpose, nay, more,



CHAIR IN THE HENRI II. STYLE. DESIGNED BY ROUDILLON, PARIS.

tion of those classes really in need of help, and in most of them galleries of art and museums are already in existence. We require no further demonstration that the need of such institutions is felt throughout the length and breadth of the land than the words spoken and the facts accomplished in different centres of the kingdom by such men as the Mayor of Birmingham, Mr. Muntz, M.P., Alderman Chamberlain, M.P., Mr. Samuel Timmins, the collector of a marvellous and invaluable library of editions of Shakespeare in Birmingham, and Alderman Bragge, who has energetically and munificently helped to educate the good people of Sheffield in art and science, and

it is scarcely adequate to the maintenance of reference and lending libraries. Fiscal misfortune, however, does not cease here. Not only are there no funds available for the establishment of art galleries and museums, but the money collected for the libraries is most seriously trenched upon by the payment of interest and sinking fund of loans borrowed under the Act for building purposes, and the libraries themselves are cramped and limited in consequence. A return has been issued showing the cost of establishing and maintaining public libraries and museums in eighteen boroughs, giving the name of the borough, the amount of population, the number of

libraries or museums, and the capital expended on buildings and fittings. One glance at the figures in the fifth and sixth columns will show how near, in almost every case, are the annual cost of maintenance and the amount of the annual penny rate. In the case of Birmingham, Coventry, and Wolverhampton, there is an annual deficit of large amount. There is no available surplus in any of them for the creation of industrial museums, or the purchase of examples for galleries of art. Here, then, are reasons sufficient to induce those in authority to give the matter their most earnest consideration, and to make them come to a speedy and wisely generous decision.

Large Government grants are annually made to the Department of Science and Art, and to the institutions under its control. Why should the provincial towns not share equally and directly in these? Why not give a direct money grant to the large and populous centres of industry in this country, upon a similar principle to that which directs Government in granting large sums to Dublin and Edinburgh? It is not sufficient to give prizes, after examination, to students in Science and Art classes. The Government ought to assist in the erection of suitable buildings for galleries and museums, and ought to make provision, also, for the collection, by purchase or otherwise, of treasures of art for exhibition. Every



CONVENTIONAL PATTERN FOR PAINTED CHINA. DESIGNED BY P. FLÖTNER, MUNICH, 1550.

No longer careless of their best interests, the provinces are now fully awakened to the importance and necessity of the art education of their people, and they are conscious, too, of the unfairness of limiting patronage and encouragement to metropolitan institutions alone. They have behaved with infinite tact and courtesy when expressing their wishes, by declaring at once that in claiming a share they do not intend to reduce their contributions to great national collections of reference, and it is with admirable modesty that they claim to be heard when saying that greater assistance ought to be given to local art galleries and museums.

collection under the control of Government, or in any way supported by grants from the funds of the nation, should have in connection with it a vast extended loan-system, whereby works of art and scientific objects might be exhibited in provincial galleries. Think what an amount of good might be done if, for instance, the art treasures of the British Museum, or duplicates of them, were distributed throughout the country, among the great manufacturing towns. Why should local museums be found to hoard up such rubbish as "two-headed lambs," or remarkable examples of "robins building nests in watering-pots," and not be made at once

the occasional depositories of famous works of industrial art in every form of natural objects useful in design? Why should there not be in each town, which is the seat of a special industry, a local museum illustrating that industry, and national productions, if need be. Is it right—for instance—that the magnificent collection known as the “Castellaine” or “Castellani” jewels, and the fine assortment of ancient goldsmiths’ art should remain hoarded up in the strong rooms of the British Museum? It is next to an impossibility to get to see them where they are at present, and then one can only inspect them for a minute or so. Ought not these to be sent on loan to Birmingham, where ten thousand goldsmiths and jewellers are thirsting for materials and new suggestions on which to construct modern jewellery for those who would gladly buy work copied from classic art? These ten thousand workmen send their finished labour to all parts of the world, and, so far as we can see, it is the bounden duty of the Government or of trustees to supply them with designs for which the country has paid out of the rates.

With respect to application to the Commissioners of the Exhibition of 1851, the tale is easily told. The Commissioners had a large surplus in their hands as the result of the Exhibition. It was, we believe, about 186,000*l*. By careful investment this sum now represents about one million sterling. The Committee has recommended two schemes for dealing with the property. It is unnecessary here to enter into the details of either. Suffice it to say that, after devoting 100,000*l*. to the erection of a building in connection with the South Kensington Museum for a permanent Museum of Science and Art, a surplus would remain—in the event of the adoption of the first plan—of 620,000*l*., and if the second were adopted, of 250,000*l*., for the purpose of promoting Museums of Science and Art throughout the country, and of founding scholarships in connection with provincial colleges and institutions. It is plain then that the funds of the commission should be realised to as great an extent as possible, and the scholarships should be made tenable not merely at metropolitan institutions, but also at provincial centres. It is possible to carry the principle of centralisation too far. Feeling is quite unanimous upon this subject, and people are agreed that other townfolk should be educated in Art and Science subjects as well as Londoners. Even an octopus may be glutted, and the metropolis, all absorbent, at last come to think that one may have too much even of a good thing. We repeat it. It is not wisdom to give a modern interpretation of “The Dog in the Manger,” and say, “Although we have no room for our treasures, nor any use for them here, we do not intend you to have them. We know that special legislation will be necessary before any loan from one museum to another can be accomplished; you will have some trouble in getting at us. We will not help you, but will await the result. Yes, Birmingham, Bolton, Bradford, and Bristol, together with all other great manufacturing towns, may

starve, while Bloomsbury and South Kensington revel.” In advocating the claims of the provinces so strongly, let us not be misunderstood. It is not proposed that works of special value or of unique character should be removed altogether from national to provincial museums, but that grants should be made from duplicates and excess stores from time to time, to stimulate the life of the local depositories. What we plead for is the removal of the scandal—we can call it by no other name—that exists in England at present. Every little continental town boasts its museum, which is almost always interesting, and often contains invaluable curios. Until lately there scarcely were buildings for such a purpose in any of the provincial towns, and even now, while such buildings remain unstocked, numerous valuable collections and specimens of art workmanship remain deposited in the vaults, cellars, and locked drawers of the British and South Kensington Museums. In the National Gallery also several thousand specimens of Turner’s drawings are at the disposal of the trustees. If these works and art treasures, or even a selection from them—now spoiling from neglect, unexhibited and unseen—were sent to the country towns and circulated in the provinces, they would prove an essential benefit to the artisan for the purposes of study, and would encourage and advance the spread of technical education among the working classes. Let us then zealously guard the interests of our country towns and great manufacturing centres, and oppose in all its forms artificial centralisation. We do not want the provincial art student to be compelled to come and live in London, we prefer him to exercise his intellect and make use of his talents in his native place. The Government must subsidise. The Commissioners of 1851 must take into consideration that a grant would stimulate the liberality of the public. The trustees of national collections must bestir themselves to supply provincial collections with casts of statuary, electrotypes of medals and jewellery, and duplicates of vases, textile fabrics, and other art treasures. Every encouragement should be given to the instruction of designers and artisans in our industrial towns. The time has arrived when local endeavours must be generously assisted. If we desire to raise the standard of taste, and create a real appreciation of art, we must help in the education of the people of our provincial towns, and widely extend its scope, and render their knowledge capable of being utilised in the fields of science and art by more direct and munificent assistance from our national collections and national funds.



RENEWED COMMERCIAL TREATIES.



EVEN the tediousness of a Russo-Turkish war has not been able to dwarf the dimensions of another momentous issue now trembling in the balance. Renewed commercial treaties are very profoundly exercising statesmen, diplomatists, merchant princes, manufacturers, employers and employed throughout Western Europe. The convention concluded between the United Kingdom and France seventeen years ago, through the honoured instrumentality of Mr. Cobden, Sir Louis Mallet, and Mr. R. A. Ogilvie, C.B., has expired, and its re-establishment on another basis is presently being negotiated. Important in itself, it is also important in its consequences, and its collateral influence. We are told, on the authority of "a personage of high station," that it will in all probability serve as a model and standard for other commercial treaties henceforth to be signed between other countries. This we can well believe. But it is surprising, in the circumstances, to find that there should be any feeling in England in favour of restrictive and retaliatory duties. We had laid the flattering unction to our souls that, among ourselves at least, Protection was dead and buried long ago. Party politics are altogether foreign to the province of this journal. On that troublous sea it is neither our inclination nor our call to embark.

It may not be out of place, however, to remark that the exploded principle has been deserted, even by the successors of those by whom it was most strenuously advocated, until it was borne down by the irresistible might of public opinion, and by the most cogent considerations of national expediency. They know very well that in the matter of Free Trade we cannot go backwards, supposing we were disposed to take such a fatal retrogressive step. No doubt this involves individual, if not class hardships, as in the case of the silk and ribbon weavers of Coventry, Derby, Lancaster, and other Midland towns who approached the Foreign Secretary the other day on the subject. Though the fiscal tactics of France exclude them from the French market, they complained that they were beaten also in the English market, where, so far as legislation is concerned, they meet their rivals on equal terms. What did Lord Derby say? "Surely," he remarked, "it is worth while considering whether the advantages, whatever they may be, which are given to the French producers in

their present position in the English market, are not advantages which we might also have enjoyed, either by copying foreign methods of procedure, or by bringing in foreign aid—*men who could show the way in which these things are done abroad, or by any improvement in the technical teachings of those who are so employed.*" These words are worth pondering. Nor would their suggested scheme of reciprocity avail the distressed interests. As has been cheerfully admitted, any attempt "to convert foreign nations to Free Trade by attacking them with protective duties, has almost passed out of the region of argument." As his lordship pertinently added: "I do not think there is the slightest probability that either the present Government or any other that is likely to govern this country would sanction that proposition. If the question is raised in the House of Commons, you would find those who favour retaliatory duties very few in number." No, whatever we may do, Great Britain will never be so misguided as to take a leaf out of the book of the United States in that respect. According to the *Times*, which has given valuable information on this question, if the depressed industries of the Midlands got their wishes, and were supported at the expense of the nation, it would be far better to do so by a Parliamentary grant, or a rate in aid, than by the hidden but equally real and far more mischievous public charity of retaliatory duties. Coming to a matter more immediately within the scope of these pages our contemporary observes: "One member of the Deputation said that the English manufacturers yielded to no competitors in skill and ingenuity. We hope that he is wrong, for, if he is right, the case is hopeless. If the English makers put forth as much skill and sense of beauty as the French, and yet are beaten in their own market, we must infer that the French have a fatal advantage in the cost of production. But the general opinion is that our manufacturers have still a good deal to learn from their rivals in the application of taste." But the Coventry weavers are not the only cavillers. Mr. John Burns on behalf of the *Cunard* Line, complains that whereas the *surtaxe d'entrepôt*, levied by the French Government on foreign goods imported indirectly through British and other ports, has hitherto amounted to 24s. per ton, it will henceforth probably be 48s., thereby annihilating a trade of standing and importance. Sympathising as we do with these and other grievances, everything must be subordinated to the general good. No doubt the French will insist on some modifications. But the best men among them, we are assured, do not want prohibitive duties, monopolies, or any of the unreasonable privileges which made Protection hateful. All they desire is a gentle help for native industry whenever it can be safely given. Should that be so, there is a fair way out of the pending difficulty: and even if the worst apprehensions are realised, British manufacturers and their employés can confidently be left to look after and vindicate their own interests, despite any oppressive eccentricities of

treaty-making. As at present advised, however, the committee appointed by the Minister of Commerce have drawn up a report entirely opposed to the demands of the English negotiators. Now that war is about to upset the commercial equilibrium, the likelihood is that the negotiations will meanwhile be broken off, and the Treaty of 1860 prolonged. The latest intelligence conveyed through the *Nation*, which ought to know something of state secrets, is that the French Government, completely abandoning the conclusions of the Customs

TECHNICAL EDUCATION IN AUSTRIA AND IN GERMANY.

"Education is the tillage that yields fruit in the future."

THE feeling is general in every country aspiring to eminence in Art Industry, that technical education, as a means of promoting the development of manufacturing resources, is a matter of absolute necessity



FLOWER VASE IN GILT BRONZE. MANUFACTURED BY HOLLENBACH, VIENNA.

Tariff, which were drawn up under the inspiration of the Protectionist majority, has decisively entered on the path of reforms, and distinctly hoisted the flag of free trade. The negotiations bear upon a decrease in the duties upon iron coming from England, in compensation for which the duties upon French wines entering British territory should be considerably lowered. So far this would be mutually satisfactory.

to those engaged in industrial pursuits, and that science must be made a more important factor in the manufacturing system and in production than it is now. No sensible man will deny the advantages to be derived from combining scientific knowledge with business-like capacity, nor attempt to undervalue the influence of Art in social progress.

Hence we see everywhere on the Continent, as well as

in England, the Governments resolved and endeavouring to extend and strengthen the machinery for technical and scientific education in relation to general industry.

Schools of Science and Art, and for technical training, have been established in many of the chief seats of manufacturing industry, and are arising in other centres of a like character, and the demand for educational organisations at the cost of the State, for the purpose of affording to the manufacturing population facilities for acquiring a scientific in place of a merely empirical knowledge of their professions and trades, is still on the increase; whilst general education, especially in this country, will in a few years have prepared the popular mind for the reception of technical and scientific knowledge, of which no one at present can form aught but an imperfect conception.

It will be of interest, therefore, as well as instructive, to survey the progress made during recent years on the Continent, after the impulse given in that direction by the Great Exhibition of 1851, and the example set by England in the establishment of the South Kensington Museum as a central repository of objects of Science and Art, and the creation of a special Department of Science and Art, in connection with the Committee of Council on Education.

Among the nations of the Continent—leaving aside France—Austria was the first to follow the example of England. By letters patent of the Emperor Francis Joseph of the 13th of March, 1863, addressed to his Imperial Highness the Archduke *Rainer*, at that time President of the Austrian Ministry, his Majesty ordered the establishment of an Austrian National Museum for Art and Industry, "containing and providing the means applied to Art Industry by Art and Science for promoting Art Industry and cognate pursuits, and the improvement of artistic taste." This museum was opened in May, 1864, and in connection therewith, projected a year after, was established in September, 1868, the *Art Industry School* ("*Kunstgewerbe-Schule*"), for training teachers, artists, modellers, designers, architects, &c.

Meanwhile the Austrian Government in 1867 organised as a *State institution*, from among the number of Schools of Industry up to that time merely supported or subsidised by grants from the public funds, the first School for Art Industry in connection with the National Museum. Previous to the organisation of this school as a Government institution, a School for Architecture had been established by a private gentleman, Mr. F. Märten, in 1865. The second Government School, namely, the School for Architecture, Engineering, and the Construction of Machinery at Vienna, was organised and endowed in 1870; and a third, fourth, and fifth, viz., the three schools for technical instruction at Brunn, Bielitz, and Czernowitz, were organised and endowed as State institutions in 1874. No grant for the organisation and endowment of more schools of that kind was made in 1875, from financial reasons.

Starting from the opinion that only by the aid of the State can any productive result be achieved; that private support, and even the support of municipal and provincial corporations is, generally speaking, (as has been proved by experience) too insignificant to ensure any active progress and success, being—in the case of *communities*—usually limited to providing the necessary localities; in that of *Industrial Societies* and of *Corporations*, to small grants for procuring the means and appliances of instruction and collections adapted for educational purposes; and in the case of *Provincial Parliaments* to endowments and the creation of scholarships of an unimportant character: the Ministry—taking also into account the general want of appreciation of the importance of this branch of education—have, therefore, taken steps for establishing various *new* schools as *State institutions*; being convinced, concurrently with all men of experience in such matters, that technical education can only prosper and succeed when it is organised and directed by the Government.

The Ministry were supported in this view by the example of England, where the administration is decentralised, local self-government developed to such a degree as in no other country in Europe, and the influence of the State in matters of administration limited to a comparatively small sphere of domestic affairs; and yet technical and scientific education in Great Britain was organised on a strictly centralised system by the Government, and to a very great extent supported by grants from the public revenues, and it is still administered throughout the extent of the United Kingdom from London, as the principal centre.

So-called *Polytechnic Schools* of a superior character, especially calculated for the development and advancement of large manufacturing industries, were established by the Austrian Government as early as the beginning of the present century. Austria was in this respect in advance of the Governments of Germany; but, unfortunately, it has not kept equal pace with its schools and its system of technical instruction—not only to the detriment of the lower and middle classes of independent industrial manufacturers, but also to the injury of the large manufacturing industries, which likewise require the services of men educated in the schools for working-managers, foremen, artisans, &c.

Another defect in the organism of Technical Education in Austria has been the re-organisation, during the last seven or eight years, of the so-called "*Real-Schulen*" (schools in which, besides languages, also Arts and Sciences are taught), which formerly pursued the double object of imparting at the same time to one class of pupils a certain amount of technical knowledge necessary to be applied to the exigencies of life, and to the other class a general education preparatory to a higher course of studies in colleges and universities.

Twenty-four years ago, when a change in the Customs tariff of Austria was in course of preparation, abolishing

the system of prohibitive duties, the administration of the educational department was compelled to acknowledge the inefficiency of the educational standard of the industrial classes hitherto aimed at, if the monarchy was

Leo Thun, in February, 1837, was stated to be as follows:—

“To impart to those pupils who do not intend to continue their studies in higher schools that degree of



SPECIMEN OF MONUMENTAL ART. BY B. ASINGER, BERLIN.

to maintain its position in Central Europe under the altered economical circumstances; and the object of the Real Schools, the introduction of which into the Austrian educational system was advocated by the then Minister of the Educational Department, Count

technical knowledge which is attainable by a lower standard of scientific studies, and thus to offer to the industrial classes, strictly so termed, the opportunity of acquiring in the most suitable manner the knowledge necessary for their calling. This opportunity was not

offered by the system of education pursued up to that period, and the consequence was, that the numerous and important class of the population devoting themselves to the cultivation and practice of industrial pursuits, were unable to acquire that technical education which is of paramount necessity and universally required; and at the same time a deterioration of various branches of Austrian industry, as compared with that of its western neighbours and competitors."

By an Imperial decree of the 2nd of March, 1851, the organisation of a number of Real Schools, consisting of two, three, and six classes, was taken in hand; but it was also admitted that even these would not be altogether sufficient to supply the wants and to satisfy the urgent and manifest requirements of the time, and consequently the establishment of Artisans' Sunday and special schools, for distinct branches of technical education, was considered to be indispensable in addition to the higher and lower Real Schools.

Notwithstanding these endeavours, the advancement and development of the schools for technical education made but little progress during the two decades of 1850 and 1860, and the establishment of actual schools of industry, with special divisions for "specific branches of technical instruction," was not carried out at all until a very recent period.

In the second half of the sixth decade, fresh views were propagated in pedagogic circles, which soon began to exercise a great influence on the organisation and development of technical education in Austria. Referring to the disadvantages and defects necessarily arising from having heterogeneous sets of scholars, and from the pursuit of two different objects of education in one and the same institution, the Real Schools were, on the one hand, condemned as answering, by reason of their mixed or rather *dual* character, neither of the two aims to be achieved exactly, and their reform therefore urgently advocated; whilst on the other hand, the demand of advancing the technical educational institutes to the rank of *High Schools*, and the separation of all inorganic subordinate branches connected with these institutions, was forced upon the attention of the Government.

The advocacy of both these demands favoured, by the parallel-acting influence which it exercised, the accomplishment of the reorganisation of the Real School system, by which these schools were placed in the same relation to the Technical High Schools (Schools of Science), as that which the "Gymnasias" (*i.e.* Grammar Schools and Colleges) occupied with regard to the Universities, and so lost the character of educational institutions with industrial aims.

Those branches whose object was to prepare pupils for a special course and direction of studies, as Architecture, Engineering, and the department of the Customs and the Monopoly system, were separated from the curriculum at the beginning of the school year 1867-68.

(To be continued.)

GLASGOW INSTITUTE OF THE FINE ARTS.



IT is an encouraging sign, showing a healthy feeling for Art, that the principal provincial towns in the kingdom should, without subvention or help from Government, have established Annual Exhibitions of the Fine Arts in their own midst. The need for such exhibitions has been forced on the attention of amateur practitioners, by the facilities for travel enjoyed by the middle classes through the railways; and the comparison of what they see in the second and third rate towns on the Continent, induces them on their return to endeavour to elevate the taste of their townsmen.

Bristol, Liverpool, Manchester, Birmingham, Sheffield, Edinburgh, and Glasgow have each an Annual Exhibition, where the efforts of the local artists are supplemented by the pictures which have been shown first at the Royal Academy in London, and by many that have missed their slender chance in the selection for Exhibition at that conservative institution. The want of efficient teaching necessarily causes a sad failing in the standard of the works exhibited; still the uneducated millionaire, acted on by the wish to patronise native talent, spends his money often lavishly on works quite wanting in the better qualities, and which when resold do not bring one-half their original cost.

In Glasgow, notably famed for its public spirit in all questions affecting the higher education, the sixteenth Annual Exhibition of the Institute of the Fine Arts has just closed. The Catalogue enumerated seven hundred and six examples. The gentlemen amateurs connected with this undertaking had obtained from France and Belgium some foreign specimens, with the simple wish to improve by comparison or contrast the efforts of the local aspirants, and to induce by healthy emulation that great progress so much desiderated and encouraged by our best patriots and deepest thinkers. Unfortunately for the Arts, and these well-meant endeavours to improve the growing love of Art, the petty jealousy of the native artists prevented or hindered their free action in this direction, and the result has been that this Exhibition, while boasting some years' standing, has been used by some of the smaller intriguing spirits for their own benefit. With the assistance of the daily journals of the city they have glorified themselves at the expense of the foreigners, exhibiting in many cases as many as

four examples from one hand—not much higher in quality than coloured photography of landscapes. In fact the whole Exhibition this year was more landscape than anything else ; and with a singular want of appreciation, or undue partiality, the best works of Art (figure and portrait) did not receive, at the hands of those who

strong ambition to improve, otherwise the year's labour and the time is lost. When the monotony of looking season after season at works by the same hand begins to pall—by the number and frequency of the exhibition—each artist's manner becomes more marked year by year, and the executive will do well to consider how far



CARVED OAK PRESS, GOTHIC. END OF 15TH CENTURY.

should direct public opinion, and who, with a self-satisfied air quite amusing, printed the opinion that this Exhibition was the best national one that they had yet had. That Scotland has produced eminent artists is acknowledged ; that Glasgow has done good service to the Arts the fact of sixteen years' success is the best guarantee, but with commercial prosperity must always go the

the artist members should be allowed to promote their own interests first, before the wider aims that such an institution should foster. They should remember that the higher culture is given by example, and this can be obtained only by a strong infusion of foreign work ; for as Shakespeare has it, " Home-keeping youths have ever homely wits."

ÉCOLE POLYTECHNIQUE, PARIS.

(Continued from page 46.)



POPULATION will always insure students, but time, and some great permanent fountain-head can alone produce and keep up an efficient staff of teachers, whose attainments in reality make the character of and give value to their teaching. To perpetuate such a staff, and to maintain

a high standard of study, seemed to Monge and to Carnot in their time conditions necessary for the well-being of the State. How much more necessary at present for all states those conditions are, we can glean day by day from the momentous events taking place around us, involved in which is always some question or other of applied science.

This institution has moreover stood the strain of seventy years of the most violent and varied political movements, and is still maintained on very nearly the same lines as those of its foundation. Lastly, it will be remarked that the level of both the entrance examination and of the course of studies has continuously been raised, reacting thus upon the whole teaching system of France, and rather increasing the competition than otherwise.

As regards the subjects forming the programme of admission, they are :—

Arithmetic	Elementary course.
Algebra	Elementary and complementary courses, or elementary and advanced courses.
Trigonometry	Advanced course.
Analytical Geometry	" "
Descriptive Geometry	" "
Physics	" "
Chemistry	" "
French.	
German.	
Geometrical drawing, <i>lavis</i> , drawing (<i>dessin d'imitation</i>).	

What may, perhaps, strike the British student, is the importance given to arithmetic, which in France is taught from the earliest stage in conjunction with algebra, of which the theory is thoroughly developed, and in which the students are generally thoroughly grounded at an early age. The methods of demonstration are so purely rational, that to catch their bearing, and render them correctly, requires thought, reasoning power, clearness of diction, and preciseness of terms on the part of the student, and consequently this branch of mathematics becomes the most useful means of developing those qualities in the student, while affording a test of his mental calibre for analytical branches of science. Descriptive geometry is included in the entrance programme

not only of the Polytechnic, but of nearly every other public school. Its importance cannot be overrated, since no other branch of geometry trains the mind so effectually to the quick comprehension of the nature of and the relations between geometrical forms and solids in space. It may even be considered as the fitting supplement to analytical geometry, and has been so treated to a certain extent by Olivier, one of its most celebrated teachers. As yet it is but little studied in our schools, but is an almost general subject in all the entrance courses to the great schools of France. Drawing in its various methods again occupies a very important part in those entrance examinations. The talent for drawing implies the ability to discriminate between forms; it is therefore a method of judgment which gives to the mind a truer and firmer grasp on all subjects involving the consideration of forms. It may be remarked that, the people most celebrated for their artistic talent, that is, their capacity to judge correctly of forms, have also been the most celebrated for their reasoning powers. Greek philosophy and Greek art are household terms, and are really more cognate than would appear at first sight.

Finally, as regards these entrance examinations, it must be borne in mind that the number of applicants being yearly about 1000, this figure really represents the pick and choice of the youth of the country, since every school, college, or institution preparing students, only sends forward, or encourages to go forward, those whose talents and studies leave them fair chances of passing for the Polytechnic. Now this implies frequent examinations from an early age, and examinations held under conditions relatively similar to those of the Polytechnic entrance examination, that is, principally *viva voce*. Hence the great development of *viva voce*, or, as they style it, "oral" examinations in France, and the frequency of those examinations. The effect is not merely to test continuously the student's progress, but to cause him to acquire *aplomb*, presence of mind, clearness of diction, propriety of phraseology, and above all, collectedness, qualities which, in after life, and more particularly for the public service, are extremely valuable, as well to the individual as to the service. Let it be noted that the entrance oral examinations are held *publicly*, before audiences both numerous and capable of appreciating the value of the answers; it will at once be understood what coolness the student under examination must have acquired, and can only have acquired by the continual habit of passing examinations in a similar manner. In a competition so keen and so serious for the youths engaged therein, this publicity is the only possible guarantee that can quell dissatisfaction and inspire absolute confidence in those engaged in the struggle. This publicity obliges the strictest care in the constitution of the examining board. Examiners in any way unworthy of the position would by their presence lessen the credit of the board, and give cause for dissatisfaction and mistrust, and consequently would not be tolerated.

We may now pass to the examination of the interior regimen and of the courses of instruction given in the school. On entrance, the student has to undergo an examination as to physical capacity, or rather to a check examination, as he had to give in certificates of perfect physical soundness before competing. The students are subdivided by squads of eight in the various studies (*salles d'études*), dormitories, dining tables, and laboratories. The cadre of each company of the two divisions includes a captain, and adjutant having the functions of lieutenant, a sergeant-major, a "sergeant fourrier," and six sergeants. These non-commissioned officers, if we may call them so, are selected from the students, and their grades authoritatively notified and sustained by the general commanding.

The students are always in uniform. They rise at 6 A.M., are called at 6½ A.M. The courses are divided into winter and summer semestres, or half-years, as follows:—

1ST YEAR.—WINTER COURSE.

Mathematical analysis.	German.
Geometry.	Chemical manipulations.
Physics.	Drawing office work (<i>travail graphique</i>).
Chemistry.	Drawing.
History and Literature.	

1ST YEAR.—SUMMER COURSE.

Physics.	German.
Chemistry.	Chemical manipulations.
Geodesy.	Travaux graphiques.
Mechanics.	Drawing.
History and literature.	

2ND YEAR.—WINTER COURSE.

Analysis.	History and Literature.
Physics.	German.
Chemistry.	Chemical manipulations.
Mechanics.	Travaux graphiques.
Architecture.	Drawing.

2ND YEAR.—SUMMER COURSE.

Physics.	History and Literature.
Chemistry.	German.
Military art.	Manipulations.
Stereotomy.	Travaux graphiques.
Architecture.	Drawing.

Both at the commencement and at the end of each lecture a certain number of students are examined by the professor. They are also daily examined by the "répétiteurs," examiners who are qualified to "repeat" the course in case of necessity, and who consequently are thoroughly versed in the matter gone through by the professor. The marks given in such examinations count for half in the total of classification at the end of the year.

The students learn infantry drill, and from time to time the two divisions go through battalion drill. Towards the end of the second year the battalion goes to Vincennes, where the students learn the elements of artillery drill and manœuvres.

Fencing, dancing, and music are taught to students who so desire, and are paid for as extras.

At the end of each six months, general examinations are held in all the subjects taught, and a classification

of merit established according to the marks obtained. At the close of the scholastic year, after the last general examinations, the students of each division undergo pass examinations before special examiners, which decide their rank of entrance into second year, or of pass from the Polytechnic into the special schools. Each student undergoes pre-examinations, at intervals of ten days between.

The rank with which they finish their studies (*classement de sortie*) is the all-important result for them, since the higher this rank, the greater the number of services they can select from for their future career. Generally speaking, the civil services are preferred, and the selection usually runs as follows: mines, *ponts et chaussées*, naval engineers (*génie maritime*) principally engaged in the naval dockyards, on all that pertains to the construction and outfit of vessels of war, and the state tobacco manufactories. Then come the military branches, engineers' staff and artillery.

It very rarely happens that students fail to pass their second year's final pass examinations.



NECKLET. DESIGNED BY BELLEZZA, TURIN.

This not merely proves that the working is hard, but demonstrates the advantages of sound preparation, and a "stiff" entrance examination.

The influence of the choice of career allowed to the students according to their rank of passage is paramount; no higher or healthier stimulus to work could be devised, and no other means perhaps could be adopted for the removal of the heart-burnings and jealousies inevitable in such a long sustained and so severe a competition. Of the many details which might be copied from the French, not one perhaps would be more appreciated in these countries, or be more calculated to call forth the highest talent and the hardest work for the public service. Of course a plan of training-schools, somewhat similar to those of France, must be assumed to be also adopted at the same time.

There is one consideration in connection with this system of science teaching, which is of capital importance for us. It is that of "cramming." With our forms of competitive examination, cramming must continue to flourish, and those who have experience of the results obtained there-

by for the public service must ardently desire the adoption of some system which will neutralise completely this unsound, not to say dishonest, form of teaching. The French method appears to eliminate the influence of cramming as completely as possible. It is impossible for a young man to get into the French public service by any amount of cramming. It would be barely possible for him to succeed at the entrance examination to the Polytechnic; and supposing such to happen, no student so prepared could hope to keep up with his class during the two years of study at that school, no matter how hard-working or how talented. As a matter of fact, the students who succeed at the entrance examination know already a certain portion of their first year's course, and are thus able to concentrate their attention on the portion of the course not known to them, and therefore requiring more labour; besides, the time allowed for the course is barely sufficient, with talent and hard work, to enable the students to master the subjects of the programme and pass final examinations successfully.

It will easily be understood that aspirants to the Polytechnic commence early—as soon, in fact, as they have shown the talent and application sufficient to allow of their training for it. Say that a boy commences about twelve or thirteen seriously to work for his entrance examination, he can hardly hope to enter before seventeen or eighteen; many fail at their first attempt, and their age allowing, try a second time. He may then be twenty years old. He has to pass two years at the Polytechnic, and three years in one of the special training-schools; hence he must have been actually working or training for the public service during a period of from ten to twelve years at least.

The course of study at the Polytechnic is admittedly very high, by some thought too high, but the number of eminent scientific men who have belonged to the school fully justifies this high standard. Moreover, the strides of science are so great, that to follow it requires thorough mathematical and scientific training, even beyond what would appear to be actually necessary. This is more particularly the case as regards the heads of branches of the public service, whose duties involve the continuous analysis of scientific plans and schemes. Great judgment is required, and frequently rapid judgment under great difficulties. This is essentially the case with the present state of the naval and military services, and to a certain extent tends to prevail in other services also. It is then that the thorough training tells, and it is precisely in view of such critical positions that the method of training must be estimated as being sufficient or otherwise.

We have mentioned that the Polytechnic is but the preparatory school for the training-schools of the different public services, and we have seen that the particular service selected by the student depends on the rank which he obtains at his final pass examinations. Now this common origin places the various branches of

the service upon a basis of equality, and must induce a strong feeling of *camaraderie* and mutual respect amongst the officers and officials. The grades attainable in each service, and the pay, are such as to maintain this relative equality. The services work therefore more harmoniously together, and understand better their respective functions, both as regards where these terminate and where they overlap, and much wear and tear of energy must thus be avoided. All have been accustomed to discipline, and the relations between officials of different grades, and of different services, must be smoother and more satisfactory; and if promotion comes slowly, if the pay is not relatively so high as with us, the social standard which men so trained can and do occupy in some way offers a compensation, and maintains an *esprit de corps* which is higher in no other country in the world, nor more fruitful for the State in good results.

We hope to examine the constitution and teaching of the special schools.



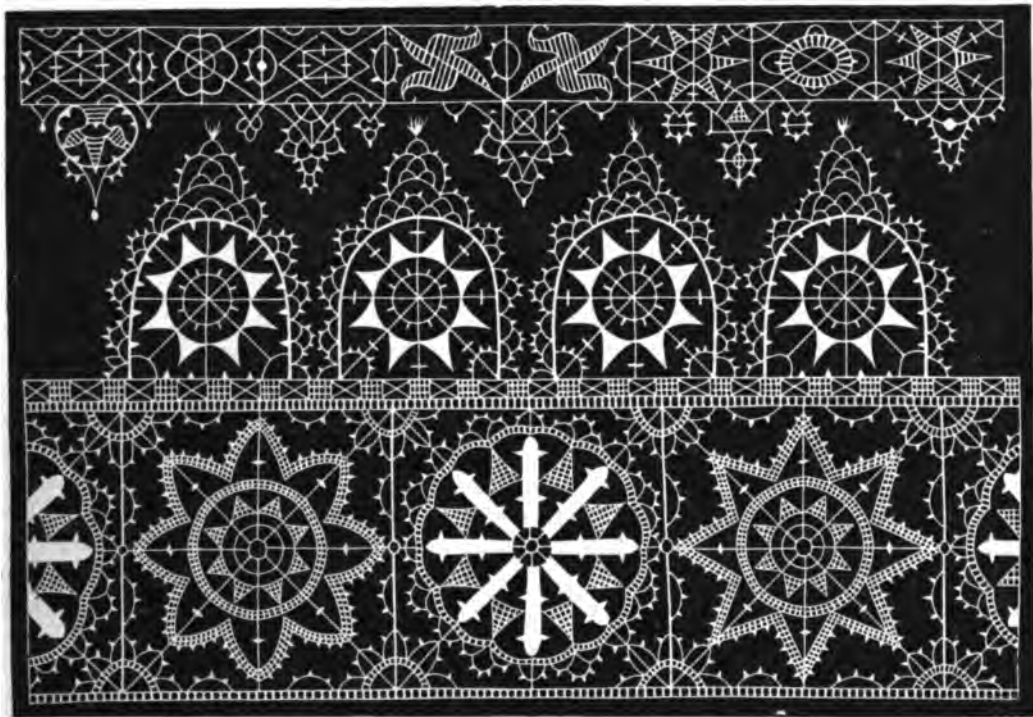
GLAZED EARTHENWARE. BY F. W. MERKELBACH, GRENZHAUSEN.

FLEMISH ITALIAN TAPESTRY WEAVING, AND THE COLLECTION OF THE HOUSE OF ESTE.

THE Marchese Giuseppe Campori, of Modena, has published in the *Denkschriften der historischen Deputation für Modena und Parma* (Memoirs of the Historical Deputation for Modena and Parma) a memoir on the tapestry weaving of the house of Este, which he has supplemented by numerous documents. By this memoir an error, shared even by Léon de Laborde, has been rectified, as if Italy had produced no carpets and tapestry at the time when Raffaele's Cartoons were sent for execution to the Flemish factories (see *ante*, p. 51). The reputation of the Flemish art is by no means

depreciated thereby, for it is her sons who first practised it in Italy, and kept up active intercourse between the two countries; whilst the Italian name *Arazzi* does justice to the home of this branch of Art Industry. The oldest instance of the application of this name, as quoted by the *Crusca*, is found in a known book, '*Governo della Famiglia*,' of the middle of the 15th century, formerly ascribed to Agnola Pandolfini, but more commonly now to the celebrated Leon Batista Alberti. (Tapestry weaving, as well as tapestry warehouses, are termed "*Arazzeria*;" a tapestry weaver, "*Arazziere*;" a tapestry wall ornament, "*Arrazame*.") Among the ancient Italian families, the house of Este occupies the foremost rank in regard to the introduction of tapestry weaving, perhaps, also, on account of their liberal pro-

who, about the year 1457, worked at Florence, to the full satisfaction of the Signoria, and at Ferrara produced larger works from drawings of Cosimo Tura, and whose name is mentioned last in 1473. Next to him, a certain Jean de Lattre, from Arras, was well known, as well as Renaud Boteram, a native of Brussels, who went in 1438 to Siena to teach his art there. As at Siena, so at Ferrara, attempts were made by the municipality, and also at Perugia, to introduce the art of tapestry weaving; in the latter place by Jacob Birgières, of Lille (1463), for the decoration of the municipal palace. But tapestry carpets were required not only for palaces and churches, they were used also as caparisons for mules. When Margrave Borso journeyed to Rome in 1471, in order to obtain from Paul II. the title and dignity of Duke, he



LACE-WORK. DESIGNED BY MATTEO FLORIMI, SIENA, 1593.

motion of this art. The first documentary mention of a Flemish artist dates from the year 1436; it is possible that others have preceded him, because accounts and memoirs of that and earlier times are exceedingly scarce and defective.

In the year mentioned, one Jacob von Flandern was taken into the service of the Margrave Nicolas III., for the purpose of repairing the tapestries and carpets of the Court. Five years later, a Peter von Flandern is mentioned, who lived for thirty years at Ferrara. Among the two sons of Nicolas, Leonello and Borso, 1441-1471, great activity prevailed. Not only were a large number of Flemish workmen attracted to Italy, but numerous drawings were sent to the Flemish factories. Among the first a certain Livino, or Levino, was most conspicuous,

had in his suite two hundred and fifty mules, all with rich coverings, partly ornamented with the coat of arms of the house of Este. His successor, Hercules I., bought such caparisons in Flanders, and paid for them through the banks of the Medici, and Portinare at Bruges. Borso had constantly tapestry work made for him, not only in Flanders and Artois, but likewise purchased carpets in France and at Florence.

Duke Hercules I. at first displayed not less splendour and liberality than his predecessors. The large collection of costly tapestry at Ferrara was increased in 1472 by those which his consort, Eleonore of Aragon, King Ferrante of Naples' daughter, brought with her. To these seem to have belonged six, which were called, according to the subjects they represented, "*La Pastorella*," and which

Eleonora's son, Duke Alfonso I., had hung up, in 1530, in the palace at Reggio, on the occasion of the Emperor Charles V.'s visit to that town, and which her grandson, Hercules II., transferred to the Este palace—afterwards the Fondaco de' Turchi—in Venice, in 1537 and 1557. In 1625 these tapestries had been completely renovated, and they lasted till the dispersion and almost destruction of all the costly treasures and the household furniture of the Este family, at the end of last century. They were not, however, woven, but were embroidered in gold, silver, and silk on velvet, like the celebrated old French productions, among which the "Tapisseries de Bayeux," with scenes from the history of William the Conqueror, are the most renowned. The Neapolitan tapestries were considered the finest in Italy, according to a letter written by a Venetian, Marc Antonio Michiel, from Rome, on the 27th December, 1519 (Cicogna, "Intorno la vita e le opere di M. A. Michiel," Venice, 1861), next to those at Mantua, which had been bought by Cardinal Sigismondo Gonzaga in Rome, until those of Raffaele arrived for the Vatican, of which, at Christmas of the same year, seven were displayed in the Sistine Chapel. Many other purchases were made by the Estes on special festive occasions; so in the year 1489, for the wedding of Hercules' daughter, Isabella, with the Margrave of Mantua; and Lucrezia Borgia also brought, on her marriage with the hereditary Prince Alfonso, many artistically worked pieces of tapestry with her, of which a list is still in existence. But the native industry fell into decay towards the end of the 15th century. The Duke and his successors seem to have had their time occupied chiefly by political cares and events of war. Meanwhile, the Flemish tapestry workers actively continued their art in other towns, such as Correggio and Urbino, in Milan, Bologna, and Rome. Marshal Trivulzio introduced tapestry weaving in his feudal estate, Vigevano, and at the Historical Art Industry Exhibition at Milan, in 1874, the twelve tapestries representing the months of the year, executed by a Milanese workman, were greatly admired by all who had an opportunity of seeing them.

TECHNICAL EDUCATION IN FRANCE.

WE have, in our notice of the 'Conservatoire des Arts et Métiers,' said a few words on the subject of technical knowledge, as it may be, and is, acquired by many intelligent workmen in France, and we have spoken highly of an institution which disseminates knowledge so precious among the masses; because we feel convinced that many of the marvellous productions which, in every exhibition where she competed, gained for our neighbour the largest share of the golden medals in

respect of works of art and of *genre*, were owing to the innate taste of her children in the first instance, and secondly to that same institution in which that taste was fostered, developed, and made to bear fruit. But, in the matter of education, there are two sides to the picture, and we deal now with what is known as "primary," which the French do not exactly take for "popular" education.

It would scarcely be fair to establish a comparison between the status of the workmen in towns and the labourers composing the rustic element. The former have naturally far greater opportunities of obtaining a certain amount of information than the latter. They may frequent theatres, attend lectures and other public gatherings, they mix together in their workshops and elsewhere; and provided that they have had schooling enough to be able to read and write passably at the outset, they possess real opportunities of improvement altogether denied to those whom field-work keeps apart from each other from one week's end to the next. The number of workmen totally ignorant of the first rudiments of the spelling-book, and who consequently are innocent of writing, is unfortunately much greater than it should be; but it is as nothing compared to that of their country cousins in a similar condition.

No country that we can call to mind has had fairer opportunities than France of bringing about a better state of things, her internal discords and foreign wars notwithstanding; yet her statistics in the matter of education place her in the rear of most of the civilised nations. Even the principalities and duchies of Upper Italy take a long lead of her in the list, though until very lately they had been priest-ridden for centuries. The Kingdom of Naples (the Two Sicilies) is still sadly backward, but there is great hope that the coming generation will show up brighter under the wise and liberal rule of the present monarch. America, with all her "go-aheadism" and unbounded resources, has nothing much to boast of; but she is, to a certain extent, a new country, whatever she may think to the contrary, and can hardly be said to have settled down to practical administration. It is only yesterday that England herself awoke from her lethargy, and to most people her educational horizon looks promising.

But France is certainly going backwards, and, unless we have formed an erroneous estimate of her condition, we must give it as our candid opinion that she is retrograding at a rapid pace. The majority of the nation deny this, but, when figures speak, truth will out, and the tables of this year's drawing of conscripts tell a mournful tale, the truth of which cannot be controverted. What can be said in presence of the following statement, based as it is on official documents?—

"The drawing of conscripts for the class of 1876 furnishes a faithful account of the number of young men having attained their twentieth year without knowing either how to read or write. That number is consider-

able in some of the southern departments. In the Tarn-et-Garonne, for instance, the proportion is shown to be six in ten; in the Lozère, the Aveyron, the Ardèche, the figures are pretty nearly the same. In the Doubs, on the other hand, they stand as one to every nineteen. The Jura, the Haute-Saône follow next in succession."

We may well inquire what the schoolmaster is about in these latitudes; if there be one, his post must be very akin to a sinecure. What has become of the great principles of the First Republic? Why, the people were never brought up to them. What can they know of the purport of those principles, when half the citizens are unable to read the Republican motto painted in large capitals on the face of every public building?

We are loth to say that personal experience will not justify us in contradicting these facts. Even among those able to write and read fluently there is a glaring deficiency of general information in the simplest matters of, say, geography and history. The instances we might quote in corroboration of our assertion would appear too ludicrous for belief.

The Roman Catholic clergy have much to answer for, no doubt, in this question of education—or non-education—of the masses, yet as this may be a matter of opinion not easily disposed of in a few words, we shall not dwell further on the subject, but look in another direction. We shall not upbraid either the present or the past Governments of the Republic for their neglect—they have had much to contend with, but we greet the actual Cabinet with open hand for its avowed intentions for the future. It now appears to take up the matter in good earnest, and manifests a strong inclination—to quote the words of a contemporary—"to apply a vigorous remedy to this lamentable state of things." M. Jules Simon speaks of empowering the communes to borrow funds from the State, or from other sources with a State guarantee, at 3 per cent., for the spread of primary education in the villages and hamlets where the want is most seriously felt. This measure forms the subject of a bill which M. Waddington, Minister of the Interior, has lately placed before the Chamber. The bill is thought by some to be the first step towards making education compulsory as well as gratuitous. Every Ultramontane in or out of the House, in or out of the Church, will naturally oppose the measure, but the Republican majority must ensure the ultimate triumph of the principle it embodies, although it may become somewhat modified in form. To make secular education compulsory in France might prove a rather hazardous venture; the priests always have had, and for some time to come will continue to have, a hand in the educational pie, and notwithstanding that the clericals are for several reasons at a discount with the masses, a few days' sojourn in France will suffice to show that the hold they have on society there is not relaxed in any perceptible degree.

Be this as it may, whether purely secular or one more or less mixed up with religion, education must be

enforced at once, or France will sink to such depths that she may never again be able to rise to the surface.

If priests and laymen could only meet half-way in a conciliatory spirit, some prompt solution might be arrived at, but there are *intransigents* in both camps, which may



TABLE IN FINE IRON WORK. BY E. G. ZIMMERMANN, HANAU (HESSE NASSAU).

envenom the debate to a degree seldom to be witnessed in any other but a French Assembly, and maybe impede for a while the passing of a measure imperiously called for if France is to retain the prestige she still—through all her ups and downs—enjoys among the nations.



REVIEWS.

A Plea for Art in the House, with Special Reference to the Economy of collecting Works of Art, and the Importance of Taste in Education and Morals. By W. J. LOFTIE. And *Suggestions for House Decoration in Painting, Wood-work, and Furniture.* By AGNES and RHODA GARRETT. (2nd edition.) MacMillan and Co.

THESE two little volumes are the first-fruits of an art in the house series, issued opportunely and with the usual good taste of the eminent publishing firm of Covent Garden.

Misses A. and R. Garrett, and Mr. Loftie, are now so intimately connected with the subjects on which they write, their title to be considered good art critics, and their recognised authority on all matters of taste, are by this time so well assured, they need no word of commendation from us. Yet we venture to think there are readers of '*A Plea for Art in the House*' who will agree with us in the opinion we have formed, that the writer might have taken higher ground than the mere 'economy of collecting works of art' for his theme, and need not have dwelt so much upon the mercenary influences which would tempt us to speculate in art objects when, offered cheaply, the prospect is held out of being able to re-sell them at a profit at no distant date. We have, we confess, our own scruples on this point, and decline to lower our love of collecting works of art to the standard he has set up, on the ground that it would, in our opinion at least, detract altogether from the enjoyment and cultivation of taste as a "moral duty," feeling ourselves unable to follow him in the pursuit of bargains which may lead us to the contemplation of Butler's "ideal type of the life in heavenly mansions." We share with others the enjoyment of a bargain, such as that made by his friend Smith, who for some six pounds became the owner of the side-board dated 1623, of whose fine proportions we may judge by the not over-skilfully drawn design figured on page 17 (for which we thank the author); but we maintain, if we ourselves had the good fortune to become possessed of such a prize, we feel how unwilling we should be to part with so lucky a find. In that admirable essay by Elia, on "old china," Charles Lamb catches the true spirit of the real collector, and fills the mind of his reader with the very enthusiasm he himself experienced when "Bridget" describes his return home late

at night with the long coveted copy of the folio Beaumont and Fletcher, when, late as it was, he and his sister sat up collating and repairing its injuries with loving care; or on another occasion when he carried home the print after "Lionardo," they proceeded to christen their new acquisition by the name of the "Lady Blanch." Yet Mr. Loftie discourses pleasantly on oriental and English porcelain, on pictures (which after this year's experience are by no means so safe an investment as over-rich speculators were at one time led to believe), and he tells of engravings and old books, such as Dibdin would describe with gusto, and enamels and ivories and bronzes, and plate and glass; he also points out, between whiles, how it is possible to furnish a house without the outlay of much money, and draws, as we have said, moral conclusions from it all.

The ladies, in their clear and neatly expressed instructions, direct us in every particular considered needful to insure good taste and refined arrangement in the disposal of our rooms; their design being to offer a few simple rules for general guidance in the planning out of a small residence, furnished on correct principles, having everywhere a tendency to lean towards what is called the "Queen-Anne style." Nothing expensive is suggested, nothing in fact but what may be secured at the same cost as the ugliness which at present pervades too many of even our wealthiest houses. We hope to make frequent reference to the pages of the Miss Garretts' book.

The Builder's Clerk: a Guide to the Management of a Builder's Business. By THOMAS BALES. London: E. & F. N. Spon. 1877.

This is a small volume of republished papers, full of technical information, addressed to builders' clerks in their first years of business, and to the managing clerk as well. The way a builder's book should be kept is clearly explained in the simplest and most intelligible language.

The "prime cost" of materials is discussed in detail, with trade expenses, horse labour, stock taking, and the payment of work people, including proposals for the amicable adjustment of remuneration for extra hours of labour, etc.

The book will be hailed with satisfaction by all whom it more directly concerns, and will supply a fitting model for those who are convinced that similar publications are urgently needed for the guidance of those engaged in other sections of the industrial arts.

Report of the Austrian Commission on Technical Education in the United States. Vienna, 1877.

That portion of the official report of the Austrian Commission which treats of the present condition of Technical Education in the United States, prepared by Dr. F. Migerka, Aulic Councillor in the Austrian Ministry of Commerce, and Executive Commissioner of the Austrian section of the Philadelphia Exhibition, is of specific interest. It has the advantage, which distinguishes it from other works on the same subject, that it is not based exclusively on official reports of the United States Government and programmes of the different schools, but embodies his unbiassed views formed by personal inspection and inquiries; and the general result Dr. Migerka arrives at, in conjunction with the independent judgment of other Austrian and American reporters, he has summed up in the following words in his Preface: "Dazzled by the picture which the United States had displayed in 1876, in Fairmount Park, of their abilities and power of production of material goods, everyone felt inclined to look to their schools for the chief grounds of explanation of this surprising development. But Europe, contrasted with America, is also in this respect justly entitled to the well-known epithet of being the pedagogic quarter of the world. A train of circumstances combined to form of America a country of material production of marvellous extent. To the schools of the United States, however, with the defects and weak points yet inherent in them as to principles, when compared with the influence of other factors, is due, in reality, only a very small part, scarcely worth mentioning, of this astonishing progress which so much excites our wonder and admiration."

Dr. Migerka's report is divided into several parts: besides the introduction which treats of the organisation of the school system, the Commission of Education, and Local School Boards in general—a descriptive part relating to colleges and universities, primary and middle-class schools, for teachers, for deaf and dumb pupils, and for the blind; and a critical part, discussing the work performed by the Board of Education or Commissioners of public schools, etc., the position of the teachers, educational books, system of examination, school attendance and discipline, with a special part devoted to "Technical Education," written by Fred. Steiner, private tutor and constructor at the Technical High School at Vienna:

The Engineers of the United States, the author says, are partly Civil Engineers, partly Government or 'United States Engineers.' The latter receive almost exclusively a military education, and are employed, in time of peace, in making topographical surveys, and scientific explorations in the vast territory of the country.

The United States Engineers mostly pass a course of study in the United States Military Academy, or, as regards naval science, in the United States Naval Academy.

Among the practical engineers, the so-called "self-made men"—that is, those who have prepared themselves for their profession so to speak empirically, and in a practical manner, without having properly received a systematic technical education—play a conspicuous part. The means offered for self-instruction, such as the free admission to all public libraries, evening classes, popular scientific lectures, and technical journals, of which the 'Scientific American' enjoys a world-wide reputation, enable many persons to educate themselves in any special branch.

Another group of practical engineers consists of men who have received their education in European technical schools and academies. Among them there are many who are in important positions and enjoy great influence; a large number of them are Germans; thus the chief



GOBLET WITH COVER. BY V. SOLIS, 1550.

engineer of the American Bridge Company, Mr. E. Hemberle, who has published numerous important works, and is at present engaged in conducting the construction of the largest timber-bridge in the world, has been educated in a technical college in Germany. Many other distinguished young men occupy important independent positions as Civil Engineers, and in most offices Germans are to be found who have pursued their studies in European schools. However, they must adapt their knowledge to the circumstances and the constructions peculiar to the country; whilst they would fail and meet with distrust if they were to attempt to introduce specifically European applications. Yet, according to the testimony of experienced men, "persons are wanted in many departments possessed of that thoroughly theoretical training which can only be ob-

tained in Europe, and which the American schools are not in a position to supply."

The correctness of this statement is best demonstrated by the fact that the sons of many American parents annually leave their paternal home for the purpose of completing their studies in European technical schools. This is especially the case in regard to architectural science, natural philosophy, the art of mining, etc.

The third group of practical technologists is represented by those who have received their education in their own

connected with the Universities (but which in name only can be compared with the German Universities) separate faculties for technical studies.

Several preliminary questions in considering these schools will have to be answered.

1. What is required of a candidate for admission?

As a rule the candidate must be sixteen or seventeen years of age, and satisfactorily pass an examination. For admission to the Polytechnic College of the State of Pennsylvania in Philadelphia, a testimonial only is



CHAIR IN EBONY, INLAID WITH STEEL. DESIGNED BY J. STORCK.

country, and this leads us to the consideration of the system of technical education. The official Report of the Commissioner of Education for 1875, enumerates forty-three technical schools, which are supported by the national land grant, and thirty-one which receive no such subvention. These institutions are partly special technical schools, which do not pursue other branches of instruction, as for example, the Polytechnic College of the State of Pennsylvania in Philadelphia, the Renssela Polytechnic Institute at Troy, N. Y.; partly there are

necessary to prove knowledge of the English language, of the elements of geometry (the first six books by Legendre) and of algebra (as far as equations of the second degree). Admission to the Renssela Polytechnic Institution in Troy (one of the oldest and most celebrated institutions of the Union) is similarly dependent on a knowledge of English geography, arithmetic, algebra (as far as equations of the second degree). The programme of the Washington University in St. Louis demands of the candidate preliminarily, as a condition of admission, the

that period, and the architectural construction of monasteries and convents. This first part, with its interesting descriptive details and illustrations of the interior construction of St. Paul's and St. Clement's Church, Rome, the St. Apollinare at Ravenna, the church at Marbach in Alsatia, the abbey church at Haach, St. Apostles at Cologne, the cathedrals at Freiburg, Amiens and Cologne, St. Stephen's at Vienna, the church of St. Barbara at Kuttenberg, and St. Catharine's church at Brandenburg, and others, is of special interest to students and architects.

The second part opens with a chapter on altars, the oldest and plainest forms of which are found in the catacombs. A sketch of a curious antique construction of an altar is given on page 121 from the St. Gervais church at Maestricht, and a splendid ornamented gold altar plate, of German workmanship, which the Emperor Henry II. had presented to the minister at Bâle, and which was recently sold at a bagatelle price to the collection of the Musée de Cluny at Paris. A similar richly ornamented specimen in Byzantine style of the twelfth century, with borders and panels in enamel, are in the abbey church, Comburg, near Schwäbisch Hall. The finest piece of enamel altar work of the middle ages, the author states to be in the church at Klosternenburg, in the neighbourhood of Vienna. In Roman times the decoration of the altars was chiefly executed by skilful goldsmiths. In the transition

period and that of the early Gothic style, carved stonework came in use, which, however, was soon superseded by ornamentation in carved wood, paintings, and plastic art. The earliest date from the fourteenth century, and in the fifteenth century they became general all over Germany. One of the most magnificent specimens of such altars is that in the church of St. Wolfgang, in Upper Austria, which was executed by Michael Pacher in 1481.

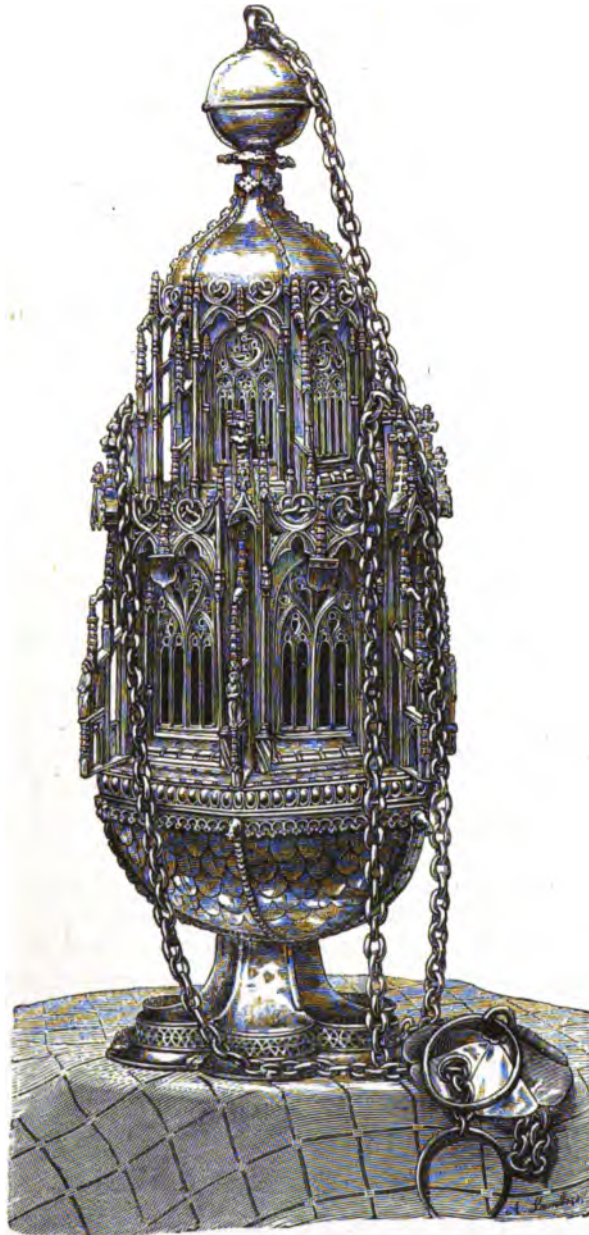
Even into Poland and Hungary the German art of wood-carving was introduced at that time, many well preserved specimens of which are still in existence.

The next three chapters are devoted to altar-vessels, crosses and reliquaries, candlesticks, chandeliers, four of the largest of which, of splendid workmanship, with exquisite ornaments of goldsmiths' art of the Roman time,

have been preserved in Germany, namely, the large and rich corona in the cathedral at Hildesheim, dating from the time of Bishop Azelin (1044-1054), about twenty feet in diameter, with seventy-two candleholders, twelve larger and twelve smaller spires, in which stood the statues of the apostles and of the prophets. Another chandelier of the twelfth century is in the convent church at Comburg, near Schwäbisch Hall, with beautiful arabesques, garlands, and figures of animals. One dating from the same time is in the minster at Aix-la-Chapelle, which was presented by the Emperor Frederick the Red-beard, and a large chandelier, in Gothic style, is in the church at Dortmund.

Then there are chapters treating of baptismal fonts, tombs and monuments, containing a number of interesting descriptive details and illustrations of baptismal fonts at Liège and Brandenburg. Of the monuments of highly artistic value may be mentioned those of Archbishop Conrad of Hochsaden (1261), in bronze and niello work, in the cathedral of Cologne; that of Archbishop Ernst in the

cathedral at Cologne, and Peter Vischer's bronze tombs and statues of 1495. Then follow reading-desks, pulpits, organs, and pew decorations; descriptive accounts of wall paintings and plastic ornamentation, such as mosaic tiles, coloured glass windows, which are rare in Germany. There are a few, however, of surpassing beauty, notably those of the cathedrals of Augsburg and Cologne, and the convent windows of Heiligenkreuz, near Vienna.



FROM LÜBKE'S 'ECCLESIASTICAL ART OF THE MIDDLE AGES.'



NOTES.

A REMARK of a newspaper correspondent, incidentally dropped the other day whilst wearily waiting for the Russians to attempt the passage of the Danube, raised the question amongst students at home as to the true position of Trajan's wall, built to complete the defences of the Danube; whilst a work of a similar kind, constructed by the same emperor, and having a like defensive intention, which formerly extended from the Tyne to the Solway, was forgotten altogether. Neither this work, on account of its want of artistic associations, nor the Tuscan wall, supposed to be the veritable 'Vetulonia' of the Etruscans alluded to by Dante, and so much discussed of late, has any special interest to us, since they throw no light on art industry.

The other day, in sinking foundations, the workmen came across the buried walls of some Roman villas in Heidelberg standing on both sides of the Neckar, where in ancient times a Roman bridge served as a means of communication; they found some choice specimens of that very beautiful *terra sigilla* pottery, with foliage and scrolls and figures of gladiators, and fluted glass of rare beauty of design, also a statuette of a Cupid and Psyche nearly perfect, of a date that may be fixed (from the coins found) as between that of Trajan (A.D. 98) and Hadrian (A.D. 138). Of the finer of these remains we hope to give illustrations. At Ratisbon, some Roman tombs of the age of Constantine (A.D. 306) have yielded, amongst other things, a very fine tear bottle of glass; and urns filled with many personal ornaments of the type usual from that period to the close of the twelfth century. A Roman gate and a hypocaust were also secured at another point.

The greatest activity prevails amongst temple explorers. The Greek Government is sending out skilled workmen; and private enterprise, under the fostering care of the powers at Athens, are grubbing up the oft-turned soil in the immediate vicinity of the Temple of Eleusis. The many poor cottagers who have long dwelt in peace within the temple precincts have lately received notice to quit, so that by the cool season we shall have the whole interior explored to a great depth.

The progress of removing from Alexandria to London the great prostrate Ptolemean monolith (sixty-six feet long), which rests in the sand by the side of the erect obelisk (seventy-one feet high), known as Cleopatra's needle, has been rewarded by the unexpected discovery of a bronze cramp still attached to its base, on which a Greek and Latin inscription is engraved, to the effect that the stone was carried successfully from Philæ, an island temple (built B.C. 350), on the Nile, to Alexandria, some 700 miles, in the seventh year of Augustus Cæsar (corresponding with B.C. 22), by the Prefect Barbatus

assisted by the architect Pontius. The block of sandstone, of which this much injured and slightly bent obelisk is composed, is not so ponderous as to prevent its being placed anywhere in London, if we are to judge by the magnificent shaft of polished granite, known as Pompey's pillar (seventy-three feet), also taken from an Egyptian temple, which not only stands on a steep eminence at Alexandria, but is itself placed upon a great stone, which serves as a pedestal; this, again, rests on a number of temple fragments of smaller size. The pillar sustains on its summit another ornament, in the shape of a battered or unfinished Corinthian capital, of enormous size, on which a bronze statue stood in former times. To arrange all this with such appliances as were in use at the time (A.D. 296), proves that a pillar some seven feet shorter, and not nearly so heavy, can be dealt with now-a-days with comparative ease; the only care that is needed being the selection of such a site for its resting-place as will secure it from being dwarfed of its fair proportions by the objects in its immediate vicinity.

AN exceedingly interesting and useful special exhibition of novelties in the tin-ware industry has been lately arranged by the society of German tin-workers, consisting of productions representing the latest novelties and improvements in their own trade, which was opened at Leipsic, on the 1st of July last. There were altogether seventy-seven exhibitors represented, and the objects exhibited are arranged in nine different groups. The first group contains machines and implements; the second, lacquered white iron, tin-plate, and beaten iron-plate wares, brass, German silver, and plated wares, enamelled and tinned iron-plate wares; the third group embraces all kinds of articles used for lighting and illuminations, petroleum lamps, cooking apparatus; the fourth group, bronzed and mosaic tin-wares; the fifth, zinc-work applicable to and used in the building trade; the sixth, miscellaneous articles; the seventh consists of electro-metallurgical articles, electric and pneumatic house telegraphy; the eighth, of steam and water apparatus, bathing-tubs, etc.; whilst the last group represents only productions of the special trade-school established by the society of German tin-workers, at Aue, in Saxony. Herr E. Türke, of Dresden, has sent two articles to this exhibition—the corner of a roof with gutter, foreshortened, and moulded cornices in natural size. The latter are stated to be a very valuable and lasting substitute for sandstone cornices. The roof corner has been designed for the model collection of the school at Aue. The second object is an arched top of a door, such as has been employed in the entries to the burial-vaults of the St. Anne cemetery, at Dresden-Löbtau. Both objects are fine specimens of art industry, and a proof of the great progress that has been made in this branch of industry at Dresden.

THE Prussian Ministry of Commerce has offered two

prizes of honour for the promotion of Art Industry, and authorised the directors of the German Museum of Industry, and of the permanent Architectural Exhibition, to take the necessary steps for the execution of the same. The authorities of both corporations, accordingly, have published their plan and conditions of the competition, from which we extract the following :—

The Industrial Museum offers :

1. A prize of 1000 marks (50*l.*), and one for 500 marks, for a stove composed of Dutch tiles (*Kachelofen*) in different colours for a large room. Beauty of form and tasteful decoration, as well as harmonious colouring, are the chief conditions for obtaining the two prizes.

2. Three prizes of 300, 200, and 100 marks respectively for a chair of wood for a sitting-room, with the application of metal-work, which, however, is optional. Conditions for obtaining the prize are : a comfortable seat, as well as elegance of form and execution.

The prizes offered by the permanent Architectural Exhibition are :

1. Three of 1200, 800, and 400 marks respectively for an elegant chandelier in renaissance style for twenty-four to thirty candles, and a pair of suitable wall brackets for five to six candles to match.

2. Three of 600, 400, and 200 marks respectively for fittings for a double folding drawing-room (*salon*) door, a sliding door, and a double window of uniform ornament and decoration. The articles intended for competition will be publicly exhibited from the 1st of November till the 1st of December, and the prize committees will have to give their decision by the 5th of November next.

THE Council of the Society of Arts in their annual report, read at their last general meeting this season, referred to the endeavours made for some time past to promote Technical Education, by establishing examinations which should test the qualifications of those engaged in industrial occupations, and thus giving them the opportunity of displaying their efficiency, from which we gather that while the public are becoming alive to the importance of this subject, the working classes are ready "to avail themselves of every opportunity which is afforded them of gaining an insight into the mysteries of science." The popularity of the workmen's lectures at the Royal School of Mines in Jermyn Street, it is stated, is notable evidence in this direction. Admitting, however, that lectures alone are but a small instalment of what is needed, the Council point to the readiness of the City companies to furnish with their ample means what is required for supplying that tuition in technology now so much in demand, by the establishment of an institution on a large and extended basis, where provision will be made for the due supply of technical instruction to be brought within the means of classes who cannot afford the payment of high fees. The Council at the same time acknowledged with gratitude the liberal action on the part of the Drapers and Clothworkers' Companies, by guaranteeing to the Society of Arts a sum not exceeding £1000, to be expended during the next two years "in providing courses of lectures, with demonstrations in metal and wood, and their application to commercial industries ; the lectures to be of a thoroughly practical character, and open to artisans and apprentices, under conditions of admission to be hereafter determined ;" with a further sum, not exceeding £50, to be offered in prizes in those sections of the examinations for which the lectures are intended to be preparatory.

WE hear from Vienna that the Austrian manufacturers have made very great exertions to carry off some of the

prizes offered by the Dutch authorities for the best designed articles admitted to the international competition, which takes place in connection with the exhibition of objects of art and art industry, referred to in our previous number. Philip Haas and Sons have sent to the Exhibition at Amsterdam, for competition, some magnificent woollen table-covers ; Regenhardt, Raymann and Garber, table linen of exquisite design and workmanship ; Ratzersdorfer, Lustig, Karl Haas, articles of gold and silver ; Bäcker, gold ornaments and trinkets ; Albert Milde and L. Wilhelm, richly ornamented candlebra of wrought-iron ; Hanusch and Dziedzinsky and Hollenbach, bronze-work ; Irmeler, articles of furniture ; Pollak and Joppich, Wunder and Kölbl, Panigl, leather work and fancy articles, etc. The majority of the Viennese exhibitors exhibit for sale all the articles not suitable for competition, in a special pavilion erected by them in the garden of the Industrial Palace.

THE FEMALE SCHOOL OF ART.—The success of the pupils in the past year was of a satisfactory character ; the Queen had given an extra special mark of her approbation by granting an additional sum of £10 to the Queen's Scholarship, and by purchasing two works selected for her inspection. Five of the national awards had been won by students of the school in a competition with 138 schools of art, numbering 27,661 pupils. Among the local awards, the Queen's gold medal had been gained by Miss Ida Lovering, and the examiners—Miss Mutrie, Mr. W. D. Dobson, R.A., and Mr. E. Long, R.A.—had recommended that Miss Alice Hanslip should retain the Queen's Scholarship for another year. Miss M. A. Burnay was the successful competitor for the Gilchrist Scholarship of £50. In the novelties of the year, a journey by ten of the pupils to Rome should be enumerated.

CASTING OF A SHAKESPEARE MONUMENT.—On the 10th of July a statue of Shakespeare, 10 feet high, was cast in the royal brass-foundry at Munich. It is intended for the city of St. Louis (Missouri). The model is by Herr F. v. Miller, jun., who has also superintended the casting. The pedestal will be ornamented with representations from Shakespeare's dramas.

THORWALDSEN'S ST. JOHN'S GROUP.—We learn from Copenhagen that the group of St. John by Thorwaldsen, made of burnt clay, and placed above the entrance of the Frue Church, which it had been resolved some years back to replace by one executed in marble, has now been completed. The marble blocks for the same had been ordered at Carrara, and were roughly hewn and prepared on the spot. The artistic execution took place in the ateliers of the different Danish artists entrusted with the work. The group recently finished has been exhibited to the public in the Royal Academy of fine arts at Charlottenburg. The names of the artists are Bentzen, Hartmann, Stein, Saabye, Freund (principal figure), Prior, Ewens, Peters, Bissen, Thielemann and Stramtoe.

THE ARCHÆOLOGICAL TREASURES OF SPATA.—The treasures found in a tomb, quarried in the sandstone rock at Spata in Attica, have been brought to Athens, and been temporarily deposited in the National Bank. The positive age of the discovered ornaments is uncertain and difficult to determine. They consist of pottery, in design and material similar to that found at Mycenæ ; trinkets in silver, more than a hundred small gold ornaments, a great number of objects in ivory, and a crystal-like substance of four different colours—transparent blue ; reddish-brown, semi-trans-

parent ; white, almost opaque ; and white spotted with blue, partly transparent only, which, in an archæological point of view, are almost priceless. The gold ornaments are reported to be exquisitely designed and executed, having, apparently, originally belonged to sets of ladies' trinkets, such as earrings, bracelets, etc. The motives of the designs are taken from shells, fish, waves, leaf-buds, and flowers in the highest style of art. Some of the trinkets are of copper, coated with gold, whilst several of the ivory articles are said to excel all that was found at Mycenæ, the designs being most spirited

that town from the 5th till the 20th of September. All productions of art and art industry will be admitted, and no style will be excluded. Architectural designs and models will be especially represented with plastic works of cast metal and wrought stone, carvings in wood and ivory, paintings in oil, on glass and porcelain, enamels, mosaics, ivories, parchment, etc., completely executed and in cartoons. Objects representing various branches of art industry, decorative productions, articles of furniture, particularly cabinet work, organs, bell-foundry work, gold and silversmiths' work,



PORCELAIN VASES. BY MINTON, STOKE-UPON-TRENT.

and artistic, and the articles themselves much more finished.

Full-sized engravings of all the chief objects found in those prehistoric sepulchral chambers will be published shortly in an Athenian archæological journal.

EXHIBITION OF OBJECTS OF ECCLESIASTICAL ART.—In connection with the general meeting of the Roman Catholic Societies of Germany, which will take place at Würzburg, from the 10th to the 13th of September, an Exhibition of Objects of Ecclesiastical Art has been arranged to be held in

brass-work, artistic locksmiths' work, die-sinkers, metal engravers and chased work, tapestry, embroidery, lace-work, book-printing, and graphical art as applied to liturgical and religious books, and works of ecclesiastical art in general, vessels, etc., of crystal, glass and porcelain used in religious service, and made in ecclesiastical style, will also be admitted.

A CURIOUS discovery of interesting Roman antiquities, we are informed, has been made within the last few weeks, in excavating the foundations for some new houses in Rome. In the quarter *Castro Pretorio*, at the corner

of the Palestro and Montebello Street, a small temple has been discovered, which was erected at the cost of several hundred Prætorians, and dedicated to some deity, or perhaps built in honour of an emperor. The marble tablets in the same are still intact, and on them the names, including those of Christians, with the names of their family and native places, the number of the company (centuria), and the cohorts to which they belonged, who contributed money towards the building of the temple, are inscribed upon them; also the date and the year in which the money was spent, are still legible on one of the marble tablets. The architectural decorations of the building, small columns, military trophies, consisting of arms and such like, are very well preserved. In the Cernaia Street, not far from the new treasury palace, an old street was discovered, which ran parallel with the Ager Servianus, led into Rome, and connected the Porta Collina with the Porta Viminale. In the new part of the city at the Esquiline, leaden pipes have been found, with the name of the proprietor of the large building, embellished with costly objects of art, which was excavated last January. In the same quarter a beautifully executed head of the younger Faustina, and an alto relievo, representing the boy Commodus, as well as some fragments of inscriptions relating to the families of the Octavias, the Domitias, and the Marcias, have been found. At the corner of the Manzoni and the Princess Margareta Street, an old building, erected in the fifth century of the Christian era, has been discovered, in one saloon of which there were found, amongst the old building materials and instruments, the mask of a faun, a pillar with two priests of Bacchus playing on a lyre, as well as the fragment of a bas-relief, representing the manufacture of arms for Achilles in the workshop of Vulcan. During the progress of earthworks in the Quirinal Street, portions of the baths of Constantine were laid bare.

WE read in *Ackermann's Illustrierte Gewerbe-Zeitung* that an improvement in the method of setting precious stones is suggested. Instead of setting, as hitherto, by manual labour in metal, Goudon employs an electro-metallurgical process for the purpose by impressing the mounting with the ornaments in wax united with pitch, then graphiting the model, he places the precious stones in their mountings, and puts the model with the stones into a galvano-plastic bath, in which gold or silver, edging the jewels, is precipitated on the model.

When the precipitation is complete, the model is taken out of the bath, the wax is then melted, and in this manner the setting of the stones is obtained *à jour*, which finally are cleaned and polished in the usual manner.

This method of setting precious stones has been hitherto employed only in the manufacture of fancy jewelry and trinkets, with the application of electro-gilding or silvering; but Goudon is of opinion that this method would also be practicable when the setting takes place in real gold and silver.

In some French fancy jewelry manufactories, one workman is able to set daily from 1500 to 2000 precious stones when employing the galvano-plastic method, but only fifty when working by hand. Coloured window panes can likewise be framed in this manner, electro-metallurgically, in place of the usual leaden framing; and objects of art, of larger or smaller dimensions, can easily be connected firmly by this process, and mounted in metal.

THE strongest proof that could be furnished as to how foreign competition threatens to upset, if not supersede, native skill and labour in departments hitherto recognised as invincible, comes to us, in a very formidable shape, from our American cousins. We read that "two of the largest silk mills in Paterson, New Jersey, have received an order from

Paris for the manufacture of a certain description of silk goods. This is probably the first order received from Europe for American silks, and comes from the nation which, having made a speciality of the manufacture, stands in the first rank as a producer." We are further told that "the judges at the Centennial Exhibition pronounced American machinery for the manufacture of silk goods superior to any in use in Europe," and this, doubtless, explains why the competition has been found possible. M. de la Franche-Comté, writing in a pungent *brochure*, entitled 'Fatal Days,' being a narrative of the events transpiring across the Straits of Dover for the month from 16th May to 16th June, says of M. Thiers that "his intense and bigoted antagonism to free-trade would have ruined France if it had let him have his way." Perhaps it might, but our Gallic neighbours still persist in a policy which must sooner or later turn out simply suicidal. With dynastic changes and the vicissitudes of fickle France we have nothing to do. They do not affect us, except commercially; but what may happen to her may happen to us, when the mercantile wheel of fortune takes another turn. Let us, therefore, be on our guard. For anything we know, an undermining process is even now going on to outbid us in our own markets, where we have hitherto held undisputed sway. Pride proverbially goeth before a fall. We must avoid that snare; and the best precaution we can adopt is to be independent of the whole world in peaceful arms against us.

THE head of *Asklepios*, figured on page 11, came to the British Museum a few years ago from the island of Milo, whence came also the well-known statue of Venus, whose lost arms were too hastily stated, in the high art journals, to have been discovered only this season. The torso to which the noble head of the statue dedicated to the father of the healing art belonged, admittedly the noblest specimen of the sculptor's art that Greece ever produced, was altogether neglected or overlooked, in spite of its colossal size. There is some hope now, however, that the little band of explorers who have taken the island in hand, may re-discover and rescue this fine work from the kiln of the lime-burners.

SOLE LEATHER CLIPPINGS, from the workshops of large manufacturers, instead of being thrown away as useless, are now collected, and after being stamped into lozenge-shaped discs in which two holes are punched, are set edgewise and strung upon wires in regular order, so as to form open-work mats for cleaning shoes upon when muddy from the street. These mats are of a most permanent character, and in every way suit the purpose for which they are intended: they are quite inexpensive.

WINDOW BLINDS, formed of long and exceedingly slender rods of wood no thicker than barley straw, strung upon coloured bands of narrow tape to match in colour with the wall decorations, are exceedingly pleasant to use; they as effectually keep out the heat as ordinary jalousies, and are every way more convenient to use. Instead of being lowered in the ordinary way, they begin to roll from the bottom, an advantage easily seen, since by this simple arrangement they are preserved for a length of time from being soiled or injured in any way.

ANOTHER elegant modification of the older form of broad painted Venetian sun-blind laths is effected by the Xylographic Company, who have produced some exceedingly thin and light and unpainted laths, on which designs are printed (in harmony with the prevailing colour of the chamber where they are used). These laths display the most elegant re-

finement of taste; they will, we doubt not, come into universal use.

DEAD OIL, seemingly the least likely product of the distillation of coal in the production of gas, has for years baffled the skill of practical chymists, who sought to turn this ugliest residuum of coal-tar to profitable account. It remained for Mr. J. Kidd, our well-known practical gas engineer, to discover its true value, which he has proved by ten years' experience. Dead oil, when heated, gives off a vapour containing a large volume of pure carbon, which, passing through a jet of ordinary coal gas, burns with an intensely pure, white light, perfectly steady, and of exceedingly valuable illuminating quality. By means of a very simple and inexpensive contrivance, ordinary gas-fittings can be supplied with the new carbon-producer, and the main advantage to be derived from its use consists not only in producing three times as much light as heretofore, but at an expenditure of only one-third the cost. The saving to large consumers—to printers, founders, and manufacturers, who use large quantities of gas and require light of the best kind, this combination of ordinary gas with the liberated carbon of dead oil, invented by Mr. Kidd, will be of the very utmost importance. The Midland Railway station has been illuminated nightly for the last ten years by the first form of burners constructed on this principle, and the most recent improvements in the simple mechanism now used for the same purpose are everything that could be wished in the way of compactness, utility, and efficiency.

LORD RONALD L. GOWER, the accomplished art historian and sculptor, whose works in marble and bronze have been made familiar to the public through the exhibition of the Royal Academy and elsewhere this season, will preside over the Art Section of the Social Science Congress, to be held at Aberdeen this month, when papers on the following subjects will be read and discussed:—

1. What principle should govern the restoration of *ancient buildings*, or what means should be adopted for their better preservation as memorials of the industrial arts in bygone times?
2. Is our modern system of *art competition* favourable or unfavourable to art progress?
3. How can artistic feeling be best cultivated, and the possession of objects of art workmanship be made *available for persons of limited means*?

MR. J. ROMILLY ALLEN, writing to *Nature* on the subject of local museums, thinks "that although a great deal has been said on the matter, next to nothing has actually been done. If, he says, local museums are to be established amongst us as a means of promoting advancement in education, the sooner the matter is taken in hand by those most competent to deal with it the better," and he goes on to point out that a society should be formed in London for the promotion of local museums, offering (as he is certain many others would do) to subscribe and co-operate for the realisation of the scheme. We heartily approve of this most reasonable proposal, and wish it every success.

GALLIPOLI, attracting more than usual attention at the present moment, has been, time out of mind, the seat of an extensive pottery trade. The earth of which the pottery is composed abounds in the immediate neighbourhood, burns a rich red colour, and, when moulded into archaic patterns, receives a peculiar but very pleasing deep green glaze with great readiness. The samples of Gallipoli earthenware, so commonly met with in all parts of Asia Minor and the islands of the Mediterranean, are modelled somewhat on the lines of

the old Samian ware, such as we notice in collections of antiquities. The objects of *ornamental art* are almost altogether confined to remarkably inexpensive vase-shaped jars, with long slender necks and twisted handles of exceedingly quaint design; these, with certain objects resembling lions of the most conventional type, having distended jaws and curly tails, stand upon legs such as only a young child would design. These lions are intended for holding burning pastiles in the rooms of the luxurious. The gilding and other surface ornamentation on vases and lions, when new, seem in the very worst taste, according to our western notions, but when the new colours have toned down, these decorative objects, scattered amongst the crimson and gold carved work of a Turkish interior, harmonise more readily with their surroundings than would be suspected by those who only see them new in the bazaars, or in the warehouses of the manufacturers.

CASTS, in *Plaster of Paris*, may be made moderately weather-proof by treating them with a solution of litharge, yellow wax, and linseed oil, according to the formula propounded by the French experimentalists Thenard and d'Arcet. This preparation has obvious disadvantages, which deter people from using that process. Mr. Thornycroft, a gentleman well known for his discoveries in the art of indurating soft building materials, and the manufacture of artificial stone of an enduring quality, has only of late perfected a means of treating that hitherto almost impracticable of substances, plaster of Paris, after it has been cast in moulds, for its better preservation in either internal or exterior decorative purposes. When fresh from the mould, and unsullied, busts and mouldings in plaster are only moderately pleasant to the eye, owing to the opacity of the white, which renders it quite destitute of *chiaroscuro*, and for this reason alone it has never found much favour either with artists or the general public. The solution Mr. Thornycroft uses, saturates the entire thickness of the cast, and in doing so, completely alters the structure and texture of the plaster, without in the least depriving the surface of its sharpness or refinement, but, on the contrary, renders it nearly as sympathetic to the eye as statuary marble, which it closely resembles in more ways than one; above all, the plaster so treated resists the action of the weather even in cities, where the atmosphere holds in solution many deleterious gases so fatally destructive to statues of every material, when exposed to their influences for any length of time. This newest discovery of Mr. Thornycroft ought to work a complete revolution in our system of surface decoration, and in the character of our open-air monumental art.

THE ROYAL AGRICULTURAL SHOW AND FINE ARTS.—A correspondent writes to us from Liverpool:—"This year the Royal Agricultural Show has been held at Newsham Park, Liverpool, with very great success, but we cannot refrain from expressing our regret that for the Gold Prize Medals, the die engraved for sixpenny medals of the Fancy Fair, held at the Prince's Park in that town in 1849, should have been used for one side: an old die of the arms of Liverpool with the legend erased or hammered out, while the new legend is 'tooled' on to the margin, is certainly not such an encouragement as we should have expected the engraver's or medallist's art would have received at the hands of so wealthy and influential a society as the Royal Agricultural Society of Great Britain."

THE SOCIETY OF ARTS.—Examinations in technical knowledge for the year have been concluded and reported upon in the opening article of the previous number of this journal. We have had occasion to dwell upon some deficiencies in the

system of technical education of this country as an integral part of national education, and to allude incidentally to the opinion of two eminent men whose authority in this respect is above question, namely, the Hon. C. W. Freemantle, the Deputy-Master of the Mint, and Mr. Poynter, the Director of the National Art Training School at South Kensington. If it were necessary to adduce further proof of the neglect in the diffusion of practical, that is, technical knowledge, notwithstanding the advance in æsthetic taste since 1857, and the endeavours to raise the workman from a mere machine "to the artist," it will be found in the very discouraging admission of the "Educational officer" of the Society of Arts in his report upon the Society's examinations held during the present year. Alluding to the subject of "Fine Arts applied to Industries," first introduced into the programme for last year, Mr. Critchett significantly remarks, "no candidates have as yet appeared," and then continues:—

"In addition to the system made in the present year was an examination in the knowledge of the contents of Public Museums and collections of works of Science and Art, the special object being to encourage the study and acquirement of a knowledge of the technical value of objects in any public Museum." The prizes offered were, one Society's silver medal, with 3*l.*; two Society's bronze medals, with 2*l.* with each medal; three certificates with 1*l.* each, and four certificates with 10*s.* each, besides certificates without money prizes. And what does the Educational officer state as to the result? Answer: "No candidates came forward in this subject!"

We now pass to the Technological Examinations, first held in 1873.

In the first year's programme there were five subjects: Cotton Manufacture, Silk Manufacture, Paper Manufacture, Steel Manufacture, and Carriage-building; in only three of them did candidates appear, the number presenting themselves being six only.

In 1874 the five subjects before mentioned were retained, with the addition of four more: Cloth Manufacture, Glass-making, Pottery and Porcelain, and the Manufacture of Gas, of which only five were taken up, the total number of candidates having increased to thirty-six.

In 1875 five more subjects were added, namely: Agriculture, Silk Dyeing, Wood Dyeing, Calico Bleaching, Dyeing and Printing, and Alkali Manufacture. All these were retained up to the present year.

In 1875, with fourteen subjects, eight of which were taken up, the number of candidates advanced to forty-six. In the following year, with the same number of subjects, seven of them were taken up, the number of candidates being sixty-two; while in the present year eight subjects had been taken up, the number of candidates having increased to sixty-eight.

"I had certainly hoped to have been able to report a larger increase in the number of candidates. Every means has been taken to make these examinations known among workmen; prizes of considerable amount are offered, and the Clothworkers' Company have munificently offered a scholarship of 100 guineas in the subject of Cloth Manufacture. . . . Even so large a prize as this has tempted but few candidates to come forward in this subject, and this year there is only one!"

"One great reason for the small number of candidates doubtless is, that there are scarcely any classes where a student may learn any branch of technology; and there are no classes because there is no inducement to teachers to open them. The fees paid by working-men, who must form the bulk of the students, are not sufficient to remunerate the teacher."

What a vast and melancholy difference is there in the system of technological instruction offered here in England, when compared with that provided by the Continental Governments, as well as in the number of those who avail themselves of the facilities offered to them at home and abroad. This is a subject to which we return in future numbers.

IN a few months an International Exhibition of fans will take place in Munich. "What is there in the world that art has contributed more to embellish than fans? Ivory, precious woods, perfumes, lace, gold, silver, silk, diamonds, in fact, all that could enrich and beautify is used for this elegant and universal toy, the rampart of women, the diplomatic instrument of beauty, behind which love hides its blushes and capitulations. Not only are fans sometimes carved by the most clever artists, but on their silk may often be found wonderful pictures by the great masters. This fan exhibition is perhaps a funny idea, but there are so many utilitarian exhibitions at the present time that we can afford to indulge in that apparently futile one. Futile! Why? I do not think that China has ever taken part in an European exhibition, and I hear that she has declared her intention of sending her fans to Munich. Is it nothing to have China represented? It is a first step. The fan is not merely a feminine ornament; besides the fans famous in the annals of antiquity, such as those of Aspasia, Cleopatra, and Pompadour, we read in history of the poisoned fan given by Catherine de Médicis to a lady who had excited her hatred, and of the *coup d'éventail* given by the Dey of Algiers, which caused his ruin. Decidedly this exhibition of fans will be worth seeing," says the *World*.

THE INTERNATIONAL EXPEDITION TO CENTRAL AFRICA.—It is announced from Vienna that Lieutenant Paulitschky, late of the Austrian army, who will accompany the international expedition to Central Africa, has entered into an engagement to establish a communication and missionary station at a suitable place in the interior of the Continent, and to remain there for ten years. The station will be about 400 German miles distant from the west coast, starting from the domain of the independent chief Smith, and the territory will be taken possession of in the name of his Majesty the Emperor of Austria, whilst the Austro-Hungarian national flag will be raised on the spot to indicate the emperor-king's sovereignty. An Austrian cavalier, well-known in the sporting circles at Vienna, has offered to support this Austrian station by large funds, and the despatch of a number of men to settle there as colonists.

A CLUB for promoting the art of etching has been started by a number of artists at Düsseldorf, under the name of "Düsseldorfer Radirkclub," for the special purpose of practising the art of etching, and to publish "the productions of their own skill periodically, after their work has been submitted for selection to a competent jury." The first collection of twelve plates has already been published. A. E. Bosch, H. Deiters, E. Dücker, Th. v. Eckenbrecher, E. Forberg, Grotjohann, C. Hoff, Chr. Kröner, L. Muntle, M. Volkhart, J. Willroider, are among the members. Honorary members may obtain for an annual payment of thirty, twenty, or fifteen marks (shillings) a series of eight to twelve plates imperial folio size.

THE *Gerber* (a journal devoted to the tanning trade) recommends the employment of toughened glass (Hartglas) in tanneries as a substitute for the stone or marble slabs now in use, and especially in place of the agate balls used in the manufacture of morocco leather, etc. "It cannot be doubted," the paper adds, "that the use of toughened glass

offers in very many instances considerable advantages compared with the materials commonly used at present ; and if it should prove true that the recently produced pressed toughened glass (Presshartglas, manufactured by F. Siemens at Dresden) really equals or supersedes in quality the toughened glass prepared by De la Bastie's process in toughness and capability of resistance, so that it can be ground, polished, drilled, and clouded, like ordinary glass, and so that above all it does not when breaking splinter into small pieces, this toughened glass will soon be adopted in all tanneries."

LIST OF ILLUSTRATIONS.

	PAGE
The Panel is taken from a portion of the illuminated border of the diploma paper, granted by the Austrian Government to successful pupils in the Art Industry Schools. The design from a renaissance type is by J. Storck, architect and professor of the Art Industry School of the Austrian Museum for Art and Industry at Vienna, and editor of the 'Blätter für Kunstgewerbe.' The initial N is from an Irish psalter of the 12th century, in the possession of Trinity College, Dublin	65
Ancient doorway to St. Farannan's Church, Donoughmore, co. Tipperary, Ireland, showing details of its canopy and other novel elements of design worthy more than ordinary attention	66
View of the western arcade of the Virgin's Church at Ardmore, co. Cork, showing classic elements in its mouldings and quoin shafts. These two illustrations are from the second volume of Lord Dunraven's magnificent work, entitled 'Notes on Irish Architecture,' edited by Miss Stokes, and published by Bell and Sons, 1877	67
The initial F is French of the 16th century	68
Chair, in the style of Henri II. of France (dated 1550), showing the manner of covering the timber frames of the furniture of that period with embroidered or stamped velvet throughout, the colours chosen being either sombre greens or brown olives, relieved by deep fringes of red or yellow, with braid borders of some neutral tint ; this style is becoming popular again in France, and, when judiciously arranged, rooms furnished in the Henri II. style, have a pleasant aspect during the autumn and winter months in particular. This furniture is successfully copied by Roudillon, of Paris	69
A conventional design for painting on china, the details being carefully studied, with a view to their suitable and harmonious arrangement in a circular pattern, founded upon the best types of renaissance ornament known. It is for want of judgment and training in the management of such important details as are here shown, that our decorators so frequently fail in designing patterns, not only for vases founded upon the classic styles, but in the hardly less important arrangement of the various parts of a design for a plate or tazza ; we have the greatest satisfaction, therefore, in presenting to our readers interested in the subject, this design so complete in all its details as to require but little letter-press description : it is from the pencil of one of the most eminent decorative artists of the renaissance, P. Flötner, Munich, 1546	70
Vignette by P. Flötner, 1550	
The initial letter E is from a fine work of the renaissance, drawn at Lyons in the year 1551, by G. Tory, whose works grace many of the volumes in the Grolier collection	72
The flower vase in gilt bronze, is designed after a favourite model, combining the severe classic details with a freer treatment of modern goldsmith's work, which, at the present time, receives much encouragement on the continent of Europe. The vase was manufactured by Hollenbach, of Vienna	73
The gateway of a tomb in bronze, with a classically draped female mourning figure advancing from the nearly closed doors, is noble in treatment and admirably suited for so solemn a purpose. This specimen of modern monumental art is from a design, recently constructed at Berlin, under the direction of the distinguished artist and designer B. Asinger, of that city	75
Flagon, designed by C. W. Fleischmann, of Nürnberg	76
Carved oak press, with metal-work displayed after the manner of the period towards the close of the fifteenth century, is an admirable specimen of its class. The work has been secured for the Art Industry School of Vienna, as a good example of fine gothic carved work	77
The initial letter P, from an early printed book published at Zurich in the year 1549, contains the elements of a type of ornament, full of suggestions worthy of attention	78
The necklet, founded upon a Roman type, is strongly imbued with the feeling of the fifteenth-century work, when at its best. Designed by Bellezza, of Turin	79
The vase and beaker, in grey and blue glazed earthenware, are singularly fine examples of a ware now much sought after by decorators and designers, and in this they are largely aided by the Minton and Doulton factories in England. The examples given are from the potteries of F. W. Merkelbach, of Grenzhäusen	80
The lace-work, is an admirable illustration of one of the many modes of dealing with this material, of as much use in ecclesiastical as in social decorations of the period when Anne d'Este was living at Ferrara in 1550, and onwards to the close of the sixteenth century. The designer of the pattern, Matteo Florimi, who has left many exquisite specimens of his skill in design, lived at Siena in the year 1593. The crystals of snowflakes seem to have suggested the design. It is a surprising fact, that at the present day, when natural objects are so much drawn upon for materials for ornamental design, the endless succession of patterns of a geometric character which snow crystals supply, have not been more used for this special branch of art decoration	81
Specimen of iron casting for a table, having many details of ornament for construction in metal, of the very best style of modern art applied to such decorative objects, founded upon classical types adapted to renaissance ornament. This specimen is from a series of designs carried out in metal by the firm of E. G. Zimmermann, of Hanau (Hesse Nassau)	83
Panel designed by the same Flötner already mentioned	84
Goblet with cover, by Virgil Solis (1514 to 1562), from a photograph by Beyersdorff, of Berlin	85
Armchair in ebony, inlaid with polished steel work, and upholstered in richly embroidered satin of the period of Francis I., having rich fringes and embroidered braid-work, which was further embellished in the succeeding reign by the wood-work being altogether concealed by cut Utrecht velvets and studded with brass-headed or cut steel nails	86
The door hanging in dark purple-brown velvet, with rich embroideries in silk and gold, and a deep fringe of the same, is of quaint design, intended to harmonise with the general character of the decoration of the room for which it is intended. Manufactured by Roudillon, of Paris	87
A panel, the motif of the sgraffito frieze of the exterior decoration of the Museum of Industrial Art at Vienna, designed by Ferdinand Laufberger, professor of the art schools, and drawn by Andreas Mögele. The details of ornaments are griffins with foliated terminations, and cupidons holding laurel branches supporting a shield with the Austrian double-headed eagle blazoned upon it	88
Group of choice porcelain vases of purely classic design, with conventional treatment of ornament showing various styles of decorative art applied to pottery. These fine specimens of Minton's manufacture were exhibited at the Vienna Exhibition of 1873, from the Stoke-upon-Trent Potteries	90

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A Monthly Review

OF

TECHNICAL AND SCIENTIFIC EDUCATION AT HOME AND ABROAD.

CONTENTS.

THE NEW MUSEUM IN DUBLIN—ECOLE POLYTECHNIQUE, PARIS—EXHIBITION OF PAINTINGS ON CHINA—
FLEMISH TAPESTRY MANUFACTURE IN ITALY—NEW GERMAN PATENT LAW, AND OTHER ARTICLES.

ILLUSTRATED WITH TWENTY-NINE WOODCUTS.

LIST OF ILLUSTRATIONS.

Panels containing Portraits of M. Angelo and Bramante da Urbino, in Limousin enamel, designed by H. Macht, Vienna.
Facsimiles of Coins of William I. and Henry VII., from L. Jewitt's "Half-hours with the English Antiquities;" by permission of the Author.
Iron Casket, from the Stollberg'schen factory at Ilsenburg.
Initial C, by G. Tory, Lyons, 1551.
Stained Glass Window ("Philosophy"), from the Vienna Exhibition.
Initial T, by Laufberger.
Arm-chair, designed by Schmidt and Sugg, Vienna.
Tapestry, designed by Fischbach, and wrought by Hochstätter and Son, Darmstadt.
Silver Jardinière, designed by Meyer and Co., Darmstadt.
Concert Piano, by J. Ibach and Son, Barmen (Prussia).
Terminal, dated 1529. French.
"The Rhine," designed for a Punch-bowl border, by O. König.
Initial O, Paris, 1572.

Beaker, from a Drawing by Widmann, modelled by M. Spiers, executed at Count Thun's manufactory, Klösterle, Bohemia.
Prizes won by Amateurs at the Second Annual Exhibition of China Painting.
Initial A, after Albrecht Dürer.
Casket Cover, worked in silks and gold embroidery; France, sixteenth century.
Majolica Drinking-fountain, designed by Val. Teirich, Professor, Art Industry School, Vienna.
Silk and Gold Embroidered Cloth. Italian; fourteenth-century work; designed by Jul. Leth.
"The Danube," designed for a Punch-bowl border, by O. König.
Ornamental Wood-carving, by Frullini, of Florence.
Crown, forming the Summit Decoration of the Vienna Exhibition Building, 1873.
Corona Lucis, designed by H. Claus for Messrs. Hollenbach and Sons, Vienna.
Border in Wood-carving, by Antonio Barile, sixteenth-century work.

REVIEWS.

"'Industrial Art' is the title of a new monthly review of technical and scientific education, which will no doubt meet, as it deserves, with much encouragement. The contents of the first part take in a wide range of subjects fairly within the scope of such a periodical, and the numerous illustrations constitute a valuable feature in a work which may be expected to exert some influence on modern design. The fact that it is published by Messrs. Hardwicke and Bogue is a guarantee for the excellence of typography, which is an element of consideration in such a work."—*Liverpool Daily Courier*.

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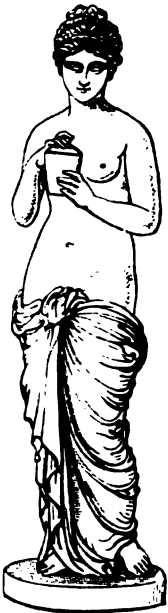
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INDUSTRIAL ART.

"If England is to retain the commercial and manufacturing pre-eminence which makes her the envy of foreign nations, it can only be on condition that she continues to deserve them."—TIMES, October 1877.

THE PARIS EXPOSITION, 1878.



WE are happy to be able to report that the 1st of May 1878 will witness the opening of the Paris Exhibition. The "wise ones" shook their heads when first the Republic announced its intention to surpass the glories of 1867. People "who knew," looked at one another and agreed that it would be quite certain to turn out a *fiasco*. Now, however, there is no longer any possibility of doubt upon the subject, and the wise and knowing ones must feel proportionately small. Already the visitor to Paris can see from the work accomplished how magnificent the completed structure will be. But a supremely beautiful edifice would in itself be no earnest of a successful undertaking. Something more is required, and that something more France has obtained. When Sedan had become history, and the horrors of the Commune had passed, and the country shook off, as a dreamer some vision of horror, the brooding terrors of that time and aroused itself to action, people muttered that the Republic was too young a thing to be trusted, that it would be unable to give to the world an evidence of its popularity, and that it was far from stable. When the Government proposed the Exhibition of 1878, the same persons denounced the scheme, spoke of the certainty of its failure, and more than hinted that other countries would not respond to the invitation of "La Belle France." These prophets have proved themselves but alarmists. The grand effort has been made, and the invitation has met with an almost universal response.

Germany alone among the nations of the earth refuses to appear as an exhibitor. This is indeed a matter for regret, not only because of the art treasures the country possesses, and the skill and capacity of the artizan-producer, but also because Europe would rejoice to see two great nations drawing a little closer to one another in bonds of amity, endeavouring to forget the errors and strifes of the past, and promising that for the future their battlefields should be in the exhibitions and markets of the world, and their wars bloodless campaigns of friendly rivalry in all subjects connected with industrial art. France herself, notwithstanding the many checks to progress she has received since 1867, will testify her ability to hold her own at the coming Exhibition. Held back by an enormous exodus of gold, by loss of territory, by governmental changes and by political excitements, she has yet made rapid advancement in many of the great industries, and there is, so far as we can gather, no one of them in which she will appear less promising than she did at the last Exhibition.

America—that infant of 100 years—is, like the young Heracles, now developing strength in unexpected ways. It is reported that, under the shelter of the "Stars and Stripes," many articles will be exhibited as exports which but a little time ago were imported largely by Great Britain and France. We know what our go-ahead cousins are doing and have done in cottons and silk, as well as in coal and iron, and we are prepared for any number of surprises in the coming May.

We have the same story to tell of Russia and Austria, Switzerland and Italy, as well as other countries of the world. As to our own land and the interest it manifests in the work, the condition of affairs is most promising. From the prince to the artizan, we are all at work

preparing to take our just share of glory and to contribute to the success of the scheme. Mr. Cunliffe Owen is everything and everywhere. The English committee under his superintendence has made mighty efforts to bring into the field of exhibition every industry and art production of the United Kingdom. The response of the country has been enthusiastic, and even though many months have yet to elapse before the time of its opening, we might almost say that every branch of English manufactures and art industries will be represented. We hope that it will not be a reproach levelled at us this time, that while other exhibits are seen from the first day of the Exposition, the British department is a confused heap of packing cases for weeks after the inauguration ceremony. We believe that England too will prove to the world that she has not been idle since 1867. Unexpected improvements will be seen in many of our art industries, for the fear of foreign competition has stimulated our producers to take advantage of every facility within reach in order to maintain the *prestige* of British goods in foreign markets.

We beg to thank several leading manufacturers who have sent us in designs of manufactures or objects of art intended for the Paris Exhibition, or who have intimated their intention of doing so. There is no fitter place for a lasting record of their works than the pages of "Industrial Art," a review which, while not ignoring the higher art culture, devotes itself almost entirely to the practical encouragement of artist and artizan alike in all works connected with the great industries of the country. We hope that our correspondents and contributors will be good enough to send their illustrations along with the description of the exhibits.

In concluding this notice of the Paris Exhibition of 1878, it is matter for congratulation to see that as a nation we have not retrograded. Our advance indeed in many things is very marked. Our efforts at national improvement during the last ten years have been great. Science has gained largely. Congresses and societies have added their mites. Art schools have arisen. City guilds have aroused themselves. Technical universities are spoken of. Local museums are founded, and art galleries opened in our provincial towns through private munificence. We need fear foreign competition no longer. We are at last wide awake to the necessity for beauty as well as utility in our productions, and we are determined to foster and encourage every attempt at improvement in our designs. That this will be apparent at the forthcoming Exhibition we have no doubt of, for there is no manufactory in the kingdom in which its prospects are not canvassed by the artizans, and there are few leading producers who have not contributed, or promised to contribute, their share to the great work now approaching completion.



THE PRESENT DEPRESSION OF TRADE.

IN the current number of the 'Fortnightly Review' there is an article by Mr. Robert Giffen, in which he ascribes the present depression of trade to the attraction of the capital of old countries to new fields, and especially to the "bad business of foreign investment and financing." He shows, as we think successfully, that there is a natural order in the crisis to which the countries dependent on England have been subjected, and points out that the decline in our export trade between 1872 and 1876—a decline which his own figures show to be unprecedented, although a little later on he is very angry with those who style the present depression unusual—is mainly with such countries as had been our greatest borrowers. Thus far we follow Mr. Giffen to his conclusion that the failure of our foreign investments, acting on the trade with the borrowing countries, goes far to account for the prevailing depression. But he goes on to say that, although the foreign loans have failed, "the community as a whole is not really poorer by the pricking of these bladders," and this seems to us not only to weaken the effect of his previous arguments, but also to be inaccurate in itself. For the community which has sunk such enormous sums of money in unsuccessful foreign investments must be poorer by their failure; but we fancy that what Mr. Giffen means is, that though many individuals (and therefore the community) be poorer, they have not suffered any lasting harm from the loss of capital; for it is a well known fact that as capital accumulates in a country the rate of profit diminishes, and one of the recognised checks against such a diminution of profits as would lead to stagnation is the diversion of capital abroad. But however the remark be understood, it seems curious, after having traced the depression of trade to the failure of foreign investments, to conclude this part of the subject by depreciating the effect of such a failure upon the community.

The author goes on to argue that the falling off of our exports is not such a serious thing as would at first sight appear. "It is England," he says, "which always gives credit in the trade of the world, and therefore whatever increase in imports there may be, is a sign of real ability to pay for them." Certainly it may be so at present, but such a state of things cannot last; if from whatever cause our exports steadily decrease, the purchasing power of the community must deteriorate also. It takes time for a defect in one part of our complex commercial machinery to tell upon all; but if this depression, and especially this decrease of exports, continues, there must come a time when the imports must also decrease, or, at all events, must no longer be considered as infallibly representing a power to pay for them. So also with regard to Mr. Giffen's remark—"There has probably never been a



ORIENTAL FRAME. BY PROFESSOR STORCK.

great commercial crisis in England which caused so little suffering to the mass of the nation." Thus far it has been so, but only because the effects of the crisis have not yet had time to reach them. In a very little while the depression must affect the labourers as it has already

affected the capitalists. We wish we could be as hopeful regarding the effects of this crisis as Mr. Giffen appears to be, and should be glad to think with him that perhaps the worst is already past; and certainly he is quite justified in saying that the extent of a depression

does not alter the power of the communities affected to recover.

We come now to the most important and, as it seems to us, the weakest portion of Mr. Giffen's essay, in which he deals with the question of foreign competition.

He ridicules the evil effects to us from an increase of manufactures abroad, and as an instance treats of the American iron and coal industries. He admits that our enterprising cousins may produce iron manufactures for themselves, and may even compete successfully with us in the general trade of the world in such articles. "But," says Mr. Giffen, (and we must quote him *in extenso* here,) "how is England necessarily the poorer for that, and how much? We may come to export a smaller quantity of our iron manufactures to the United States than in the years before 1872, but at most we shall only lose the *profit* on so much trade, not the whole value of what we sold to the States, which was, in comparison with our whole trade, by no means a large sum. Nor shall we even lose the whole profit. We can only lose the difference of profit between what was derived from that trade, and the return on the less profitable trade into which a portion of our capital and labour are diverted."

This passage seems to us to bristle with errors. Surely it is a very fallacious consolation for loss of trade to tell a manufacturer that he *only* loses his profits. As they constitute the sole benefit which he derived from the trade, we might just as well have urged in extenuation of its advantages that he only *gained* the profits. It is true almost to platitude, that if the capital and labour set free by a loss of American trade are diverted into another channel, the manufacturer will not lose the whole profits of the former. But suppose—and surely, with many instances of it before his eyes in commercial history, Mr. Giffen will allow that the thing is conceivable—that no such diversion takes place. Does not the community suffer then? Or, even if another trade is taken up, it appears to us self-evident that there is far more loss in the diversion of capital and labour from one employment to another, than is represented by a mere difference of profits.

Further, it does not seem quite fair, when a typical case has been taken for convenience, to argue as if it were the only case of competition which we have to fear. Yet this is what Mr. Giffen does, if there is any meaning at all in introducing a comparison, however general, between our whole trade and that with the United States.

The competition of foreign countries in every branch of industry is a real evil, and one which cannot be explained away by such fallacies as those of Mr. Giffen. It may be true that the cry of low wages abroad is a bugbear, for up to the present or recent times our own workmen, though they received higher wages, did more work than foreigners, and therefore our cost of production was not really higher. The tendency of the universal introduction of machinery, however, is to assimilate the capability of production among labourers, and therefore

our cost of production will soon be higher than other countries in many more manufactures than at present. Of course, as Mr. Giffen says, if other countries undersell us we shall "only lose our profits," but probably the manufacturing community will hardly look upon such a state of things with the same equanimity as our light-hearted political economist.

THE TANNERS' NEW ASSOCIATION.



ONLY a few years ago our consular representatives abroad were called upon by the Foreign Office to contribute such facts as they could procure, bearing upon the native manufactures and natural resources of the various countries where they happened to be located at the time.

In response to this requisition Her Majesty's Consuls sent in replies which, when grouped together in parliamentary Blue Books, were rendered available to the public in due course. In their pages the student, seeking for amusement or instruction, found much to repay him; the merchant gleaned many a valuable hint long since turned to profitable account in his business; and the speculator, finding new resources for the expenditure of capital, derived great pecuniary gain from his projects set on foot after reading these consular reports. That the Government was repaid for the display of wisdom they manifested on that occasion is amply attested by the Board of Trade Returns published every year. Since the reports appeared, a wider intercourse has sprung up between our merchants and the local traders of many foreign ports, where formerly industry languished for want of commerce, and human enterprise has received a fresh stimulus everywhere abroad, so that already prejudice and ignorance have commenced to give place to civilisation and enlightenment. When these consular reports were being issued, the various trades most concerned with these inquiries very soon found it to their advantage to sift out of the great accumulation of facts, then for the first time collected, such details as had special reference to their own industries; and facts contained in the consular reports were in time filtered through the various trade journals which about that time sprung into active operation. Subsequent consular statements, furnished to Parliament annually, have been almost altogether limited to strictly statistical tables of the exports and imports of merchandise, but they are still replete with valuable information to those accustomed to their use and operation. As might have been expected,

these trade journals now begin to perceive the urgent necessity for some stricter method of Technical Education; and their managers being, as a rule, men of shrewd common sense, and alive to the interests they so ably represent, find it convenient to devote much of their space to the popular question of scientific training for the young people who will eventually take a prominent part in conducting or assisting in carrying out the national industries which are now threatened on all sides by the new generation of highly educated foreign manufacturers who have embarked their capital in our leading industries.

The earnest attention bestowed upon the subject of late by our leaders of public opinion has not failed to impress the more thoughtful of our best known manufacturers, who are confessedly bewildered by the rapid change the world of late years has undergone, or is undergoing, the causes for such changes being to them by no means pleasant subjects for contemplation.

It is admitted on all hands, however, that if we are to maintain our industrial supremacy, we must not remain any longer indifferent to the unceasing efforts of our continental neighbours to pass us in the race, and as it has been our object to point out in every number of our periodical the strenuous and successful efforts to promote Technical Education in the German and Austrian empire and in America, it behoves us to be on the alert in our endeavours to secure a sounder system of Technical Education for every person engaged in the industrial arts, the source of England's greatness amongst the nations.

Already there are healthy signs of activity amongst our various branches of industry, and in none is this activity more observable than amongst our Tanners. Their trade is represented by about four million pounds sterling annually. The mystery of manufacture is as little understood to-day as it was four hundred years ago. Certain formulas are observed in the tan-yards, certain nostrums secure a higher degree of excellence for one maker over another, but no one has as yet turned his attention to the scientific analysis of the constituents of the tanner's trade. The materials are purchased by rule of thumb, bark is worth so much a ton, quite irrespective of the relative value of this or that kind, or the tanning material it contains. Valonia comes from abroad in ships, and valonia has a certain value in certain years: in the mean time the oak supply of England is steadily decreasing, and valonia may any day, for what we know, be forestalled by foreign speculators; yet until the other day, no scientific apparatus existed by which the qualities of various tanning materials might be tested with anything approaching certainty respecting its value, measured according to any known fixed standard. What improvements have been made in the method of dealing with tanning materials come to us from foreign technical schools; whilst any effort to institute an exhibition of various productions of the tanner's art had their first inception at Vienna, followed this year by an exhibition of a like kind at Berlin. It would be wrong to say that no thought for the future has been taken by

English manufacturers. There are some gentlemen engaged in this industry who have long been busy in their endeavours to formulate an association where subjects affecting their interests might be discussed; and amongst these Mr. W. N. Evans of Bedminster has been foremost in every effort made of late for the purpose of advancing the interests of this great industry. The cotton-trade of England, the growth of the present century, has almost been snatched from us by foreign producers, their cottons having a more dainty surface, and being, as a rule, much more elegant in design, even though the material itself may be inferior in point of quality to ours, now compete with our fabrics in every foreign market. The trade in iron and steel, of as recent growth in England, according to a letter written lately by one of the oldest and perhaps the largest manufacturers amongst us, is passing out of our hands into the American workshops, built in the neighbourhood of mountains of pure ore and cheap coal. Glass and china of elegant designs, distributed from the German, Austrian, and Italian makers, may be found in our remotest colonies. Leather, of inferior quality no doubt, but still saleable in every market in the world, is sent from other countries into England, where it finds a ready sale amongst the struggling poor, who suffer greatly through its valuelessness. If, then, we are to retain our industries, we must only hope for our continued success by the production of articles of unequalled quality, and to secure this, we must have intelligent, well-trained workmen. The Board schools were not instituted a day too soon, but the Board schools only train the child for the Technical School, and if there is no Technical School the State will lose all the advantage that might fairly be expected to be derived from the training offered by the Board schools. If Bristol has suffered in her sugar trade, it should be a warning to her to guard her leather industries. To do this intelligently she should extend the usefulness of her Trade School by the introduction of a professor of organic chemistry, who should have ample funds placed at his disposal for the prosecution of his inquiries into the subtle laws which underlie the process of tanning, who should be aided by a select class of the most intelligent young men—sons of manufacturers and others—intended for the tanning trade. These youths, during the term of their probation, might assist in the technical teaching of youngsters whose future life will be passed in the tan-yards as operatives of every grade. Leeds and Bermondsey should be called upon to support this splendid enterprise, and the success sure to attend this all-important effort, if taken up in a proper spirit by the Tanners' New Association, and carried by them to a successful issue, would earn for its promoters the gratitude of the nation.



ENGLISH PIANOFORTES.

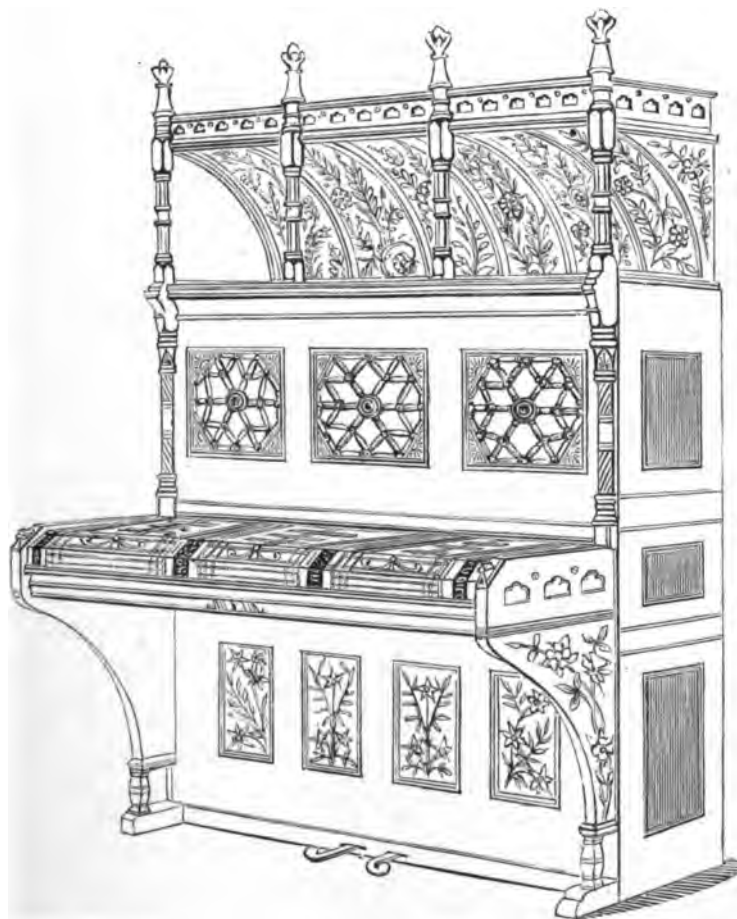
WHEN the history of existing industries on which the higher light of art has been made to shine comes to be told, one will assuredly occupy a prominent page that, not two generations back, held but a secondary position in the catalogue of mechanisms. It is to the manufacture of the pianoforte we allude, and for the rapidity and magnitude of the improvements accompanying its progress it has scarcely a parallel in kindred branches of Industrial Art. In fact, so extreme was the simplicity of the early construction of the instrument, neither its exterior, nor, for that matter, its interior, could be said to present any features coming within the province of Art, save the quality of its musical sounds; and this was generally of a nature that, at the present day, would make the hearer inclined to shut his ears. How all this has changed would take too long to relate, our immediate task is only to describe something of the *modus operandi* pursued in manufacturing the modern pianoforte.

For this purpose the works of Messrs. John Brinsmead and Sons (of 18, Wigmore Street, London, W.), situated at Kentish Town, will serve as an illustration. Their buildings and grounds are extensive, covering an area of nearly an acre; their working system (which includes the labour of over three hundred skilled hands) is simply irreproachable; the principles on which they fabricate the instrument are in some respects superior, though in all equal, to those of every other firm. It can in truth be said that in so far as a thorough technical knowledge and an incessant search after improvement are concerned, the Messrs. Brinsmead have for a considerable time been in the van in pianoforte mechanism. But they have not alone improved—they have invented; and their patents (protected throughout Europe and America) are of such acknowledged value, that makers in the United States have arranged, by payment of a royalty, to have the right to make use of them. No higher proof of their importance need be required. Recurring, however, to the matter of construction, let us enter the outer walls of Messrs. Brinsmead's factory. At once we find ourselves in a timber-yard of very large dimensions, containing stacked piles of walnut, oak, sycamore, beech, lime, and deal, cut to all lengths and sizes. Here the wood remains for three years and upwards, until it has become thoroughly seasoned, it is then removed to the mill-rooms to be sawn to the exact proportions subsequently required. These rooms contain machinery of immense value and extent, this turns out the work in really perfect style. But the wood is not yet sufficiently dry to ensure its not warping when submitted to the processes to follow. It is therefore once more stacked, but this time in an outer building, called the drying rooms; here the atmosphere is heated by steam-pipes to a regulated

temperature, varying from seventy-five degrees on the ground to ninety degrees on the topmost stage. A rest of some months takes place in this department. When the wood is at last thoroughly dried, it is ready to be used in the various shops for the construction of those parts of the instrument for which each particular species or quality may render it suitable. That for the exterior of the pianoforte has of course to be veneered, and we find the exquisite grain of the Circassian walnut is largest in request; the room in which these veneer-"leaves" are kept contains, in the space of every dozen square feet, a stock worth some thousands of pounds. While the outer appearance of the wood is here made pleasing to the eye, the work of preparing the interior parts is being carried on elsewhere. Backs, formed of deal and made strong with supports of iron tubes and bracings; beech, deal and lime together made into what are termed wrest-planks; sounding-boards, composed of thin planks of Swiss pine, with metal bridges to enhance the clearness and power of the tone; handsome fretwork fronts—all these various pieces are being brought to a state of completion in as many different departments of the factory. In due course each is fitted into its respective place, and the embryo piano gradually begins to assume its familiar shape. The strings have been fitted on to the sounding-board, some in vertical and some in oblique fashion, and all is now ready for the reception of the "action." It is to this part of the instrument that Messrs. John Brinsmead and Sons have given the full study of their long experience, and herein each of their marvellous improvements have achieved remarkable success. But at the head of all stands the "Perfect Check Repeater" action, patented by the firm in 1868. Its mechanism renders repetition certain and instantaneous; so that the lightest touch, however quickly repeated, secures a distinct intonation without in the slightest degree affecting its purity and brilliancy. This excellent invention has received universal praise, and at every Exhibition of importance in Europe and America, and even recently at that held in South Africa, instruments containing this improvement have been awarded the highest medals and diplomas of honour. Another useful discovery is that of the sounding-board called the *sostenente*, the peculiarity of which is that it extends over the entire back of the pianoforte, and thus adds greatly to the power and intensity of the reverberation. The hammers are made with much care and delicacy, and covered with a single strip of felt graduated in thickness according to the pitch of the wire to be struck by it. The "action" having been inserted (which is effected in what is termed the finishing-room), the key-board is now added, and the last touches are given previous to the final operations of tuning and regulating. These concluded, the instrument is removed to Wigmore Street for inspection and "voicing" at the hands of Mr. John Brinsmead, who personally undertakes this duty with every piano that is made—no fewer than sixty pianos per week are turned out on an average.

It now remains only to mention a word as to the different classes of instruments made by this enterprising firm. Most of them contain all the improvements above named, and notably so the "upright iron grands," which are the finest upright pianos constructed at the present day. The little instrument known as the "Centennial," which took the first prize at the Philadelphia Exhibition, is in all respects a perfect production; and for a piano

iron grand, with a compass of seven octaves. It is fitted with the "perfect check repeater" action, *sostenente* sounding-board, complete iron framing, &c. The curved top-part of the back is intended to act as a fenotone, collecting the sound and throwing it forward. The shelves are excellently adapted to the display of antique china and small ornaments. The grand pianofortes made by this firm are also magnificent instruments; they are at



PIANO. BY MESSRS. BRINSMEAD. (EARLY ENGLISH STYLE.)

of its kind and size, its "singing" qualities are something wonderful. As a specimen of what Messrs. Brinsmead can do in the way of uniting beauty and novelty of exterior decoration with the splendid musical effects we have been describing, we give a drawing of a piano-forte in the early English style, which they have lately brought out.

The price is 150 guineas. It is a full trichord upright

present manufacturing one that will be the largest ever produced in England. It is intended for the Exhibition at Paris next year, and they hope to make its tone surpass all their previous attempts. The instruments designed for use in foreign climates have stood, with complete success, the rudest tests to which they have been put.

The cases are, of course, made of solid wood only, and wherever it is found possible to insert a screw or a

brace to add to their strength care is taken to do so: an excellent proof of the high esteem in which these pianofortes are held by the best judges is that they have been awarded Gold Medals and the highest diplomas of Honour at the principal International Exhibitions of London, Paris, Amsterdam, Philadelphia, and South Africa.

AFTER-DINNER CHAT ABOUT DRESS.

"A sweet disorder in the dress
Kindles in clothes a wantonness."

Herrick.



FEW nights since a couple of men dropped in to dine with me. During the process of assimilation the conversation naturally worked round to "the ladies," until at last it became an involved general criticism upon their taste in dress, with respect to colour and design,

and it finished with an expression of regret, carried *nem. con.*, that women were not compulsorily subjected to a course or two of Technical Education in relation to this all important matter. One man related how, walking down Regent Street the other day, he found himself engaged in a new occupation, viz., regarding the fair sex without admiring them, and he told us with a certain amount of *naïveté*, how the colours and shapes of the dresses surprised, amused, and distressed him, and finally set him to the very unusual task of thinking.

Another recorded his observations upon the same subject, made from his seat on the top of a "bus," and gave us an account of a garden party, where he met his gentle cousin so "cui-rassed," laced, and "tied back," that she minced in her walk, and was obliged to decline a game of lawn tennis because she was unable to stoop to pick up a ball. During the recital I was irresistibly reminded of our friend Terry at the Gaiety, where, in the last act of 'Weak Woman,' as Captain Ginger, he dons, for the first time, a tight-fitting uniform, and amidst the agonies of a close embrace from his future spouse, declares that "he knows he's going—somewhere." I myself know two young ladies—this is *apropos* of lawn tennis—who being asked to play a game at a large garden party not long since, tucked up their trains, and displayed themselves to the astonished, but not delighted spectators in pink silk stockings, unveiled by one modest nether garment. Really this careful outlining of the female figure, and laying aside of underclothing, and rabid assort-

ment of colouring is quite too bad. Is there no method by which it can be checked? It is quite absurd to lay all the blame upon the milliners and dressmakers. The real culpability lies at the door of the public, which allows itself to be governed by a *clique*, and will not assert its independent judgment, or educate its own taste. The other day, when speaking upon the art of preaching, Mr. Gladstone, endeavouring to explain the fact that people so constantly complained of pulpit utterances as common-places, said: "This is because there is some deficiency in that healthy appetite with which they ought to be received by the pew." Now this is no less true of preachers and preached to, than it is of producers and consumers, of dressmakers and dress-wearers. It is the verdict of common sense that the Technical Education of the one must be preceded, or at least accompanied by, that of the other. The result of any other course would simply be the creation of a colony of paupers. It would be an act of gross folly to take a number of men or women engaged in the manufacture of any fabric either of wearing apparel or of decorative material, and to educate their taste without, at the same time, creating in the consumer a corresponding sympathy.

Sentiments such as these I expressed to my friends, as we sat round our first log fire of this season, cracking our walnuts and sipping some old port. I feel that it is altogether unfair to our West End men, and to the other houses in the trade, both here and on the Continent, to point at them alone the finger of scornful accusation, and to cry, "You are responsible for this costume's outline and colouring." What on earth can be done with a girl who thinks she does not look smart unless she is decked out in three or four colours at least, and the ambition of whose life is to be "tied back?" Nothing. She enters the *Magasin des Modes*, sailing queenly. She looks round, gives her order, is content with a "sweet thing, last fashion," and so helps to rivet the chains of slavery that bind producer and consumer alike. Dressmakers must live. It is a fact; they cannot feed on air, and so they meet a certain demand with a certain supply, and, when accused of the tyranny of fashion, they bear the accusation meekly, and, on the departure of the dress-wearer, solace themselves with the smile of superior knowledge. Ask men like M. Worth, who, by the way, is the owner of a house near Mont Valérien, which has one of the most lovely interiors in the world, a place of delight to art critics; or M. Emile Pingat, of the Rue Louis le Grand, who is the best mantle-maker now in Paris. Ask men like these, I say, their opinion, and you will find that, so far from countenancing or encouraging such warped tastes and habits, they acknowledge themselves to be the unwilling victims of the multitude, in whose hands they are.

What we must endeavour to do is to educate the people up to a proper standard. This matter of dress may seem an unimportant one, but it is far from being so. Authors and poets and other teachers of different

ages and times have tried to instil proper principles for the regulation of dress into the minds of women, and to check their folly, extravagance and caprice. At St. Leonard's-on-Sea, as I was walking along the Marina, I beheld three figures this season in such costumes with respect to colour and design as fairly staggered me. The tints were simply odious, and the shape of the garments so hermaphrodite that I was puzzled for a while to

Enough of this, however. My object is not to become colloquial over what I have seen and observed in relation to dress, but simply to record, as far as I can remember it, our post-prandial conversation. I did not intend to wander away so far from my subject, but I always do it. I was not intended for an article writer. I never was able to compose an essay. The rules of the essayist are too exact, too cut and dry for my flowing



AFTER A LIMOUSIN DESIGN. BY MINTON, OF STOKE-UPON-TRENT.

know whether they were boys or girls. I looked at one of the figures and felt disposed to cry out in the language of one of old Sir Roger de Coverley's tenants—"Tis a gentlewoman, saving your worship's presence, in a coat and hat;" or, as Ovid has it—

"Nec duo sunt, at forma duplex, nec fœmina dici
Nec puer ut possint, neutrumque et utrumque videntur."

pen and redundant desultory style. I remember once being invited to write a "leader" in 1275 words. The result was mental paralysis, and consequent dismissal from sub-editorial pursuits. To resume, however.

Another point was started and fairly discussed during the evening—the difficulties surrounding the application of technical education, so as to make it of real advantage to the community at large, and the employment of the

separate functions of the practical capacity of the business man and the creative faculty of the artist in the work. Even supposing the public to be most willing, and the producer most anxious to turn over a new leaf and inaugurate a new *régime* in the matter of dress, the subject is still pregnant with difficulties. Take, for instance, the one case of silk manufacture. Unhappily for England, but little remains to her as a national industry but the very dregs of the trade. Manchester and Macclesfield may still be able to compete in the commonest type of silk manufacture, but they can do no more. Even that which is left to us is threatened by the severe competition of Zurich and Basle. Lyons, with its thousands of weavers, is now the acknowledged successor of Venice and Genoa. Octogenarian old maids and dowagers may still talk of "our Spitalfields," but Spitalfields as a centre of silk industry is almost defunct. The depraved taste of the nineteenth century public has affected the Lyons looms as well. It is a fact that, notwithstanding the strenuous efforts of a few earnest men both here and abroad, the taste of the present day is infinitely worse than it was ten or twenty years ago. The increased and increasing publicity of our lives; the intense desire to appear as well off and as fashionable as our neighbours; the effort to live in the style of 2000*l.* per annum when your income is a bare 500*l.*, these and many other causes are at work to produce the veneer and false display and execrable taste of the present. These, coupled with a fatal ignorance of the first principles of art, are almost sufficient to account for the dress-enigmas of to-day. Even a few years ago by far the most important personage in the Lyons silk industry was the artist who supplied the weaver with designs, but now his occupation is virtually gone, and, of late, the principal genius seems to have been the dyer. Why is this? How has this change come about? Simply that when the taste for the old types of floral and arabesque designs seemed to be exhausted, and before the dawn of the present appreciation of Oriental art—to which we will refer later on—the meretricious craving for novelty placed Monsieur the Dyer in the front rank. Look back for a moment. View the results of his efforts—the confusion of tints which gave birth to the taste for the greenish drabs and the bronzes of the last few years! These shades of colour twenty years ago would have been considered fit only for our iron railings and our stable doors. Follow the course of fashion on through the chaos—there is no other word for it—of tints that not long since culminated in the "Mandarin" and the "Vieil Or"—colours so frightful that no woman, be she *blonde* or *brunette*, could possibly wear them, except for trimming, and no number of leading articles could force them to become fashionable. Here, again, who is to blame? The leader of society who, like the Athenians, is always on the look out for something new, or the producer who supplies the novelty in obedience to her command? No doubt there is such a thing as "the reign

of terror" of the French dressmaker, male and female. No doubt it may be said that never in the history of the race has any reign been distinguished by such thoroughly despotic laws. Who reared up the dynasty? Who encouraged and fostered it? Society, that helped to frame the laws it now groans under. The despotism, we know, is so complete, that not only France owns the sway, but England, Russia and America; and, in fact, one-half of the world is ready to ignore its own desires and stifle its longings, and bury its all too slender stock of individual taste in order to live and move in the fashion. Its rule is, in short, all subduing and utterly subversive of the spread of the true principles of art in relation to the colour and form of dress; but we must not throw the whole blame upon the half-dozen Parisian dressmaking dictators, or upon their imitators at home and abroad. Slay the monster growth if you like, but in slaying it let us remember that we ourselves have given birth to it.

All this may be considered to be quite beside the question, but really the two things cannot be dissociated. They are entirely dependent the one on the other, and it would be idle to consider them apart. It is quite right to endeavour to reform, but it will be well to think about what has to be undone before we begin to do anything. We agreed before that it is a proper object of ambition to educate the producer, but let us see what we can do also for the mothers and daughters of our land, who in their houses and in their persons alike are the slaves of King Conventionalism. Take the ordinary well-bred Englishwoman. Where is her taste in dress or in decoration? She has none. It is supplied to her by her milliner and her upholsterer, or rather, she is supplied at second-hand with the taste of the day, and in so narrow a groove does that taste run, that estimable people like Jackson and Graham and Madame Louise have it all their own way, and society walks in a livery and lives in houses as like one another as peas. Contented laziness and the love of having things done ready for us are all very well in their way, but they have their drawbacks. I used to be able to know something of a friend's or acquaintance's mind by looking round his rooms. Now as I pass from one drawing-room to another when doing a round of conventional morning calls I get confused, and have to check off on my fingers the people I have already visited, for I feel as if I were going through a set of furniture warehouse show-rooms, and I meet the same anachronisms, conventionalities, and glaring horrors in each. Is it not humiliating to us as a nation that we should allow other people to think for us so completely?

As the evening wore on we spoke of dress as affected by specimens of Oriental art. Since the more extensive opening up of our trade with Japan we have made a small step in the right direction, by adopting some designs and colours from a country rich in artistic taste of the highest order. What may be in store for us in that quarter of the globe we know not yet, but it does not require the eye of a trained artist to appreciate such art as this. It

is from its very truth that we accept it. Take up the commonest piece of lacquer, or the cheapest paper fan, and you find depicted that which you feel to be true. It may be only the barest and most sketchy outline, but the design is fresh and original, the colours are harmoniously blended—there is nothing to offend in it, and the mountains are unmistakable mountains, the water is undoubtedly water, and the tiny craft sailing on its surface are full of life. This trifle that exacts our honest admiration costs but a few pence! Now don't let us be misunderstood. We don't mean to say that our girls' gowns

there a few fabrics are to be seen which owe their origin, so far as pattern is concerned, to Damascus.

One method of improving the national taste in dress is of course to encourage the talents of designers and artists, and to implant as early as possible true principles in relation to art in the minds of our children. Various modes are now being adopted all over the country to carry this idea out. Everywhere people are crying out for art schools and technical education colleges, while institutions already in existence are bearing a fair share of the burden. Can we not as a nation create a new



FIREPLACE OF WHITE GLASS. DESIGNED BY BERNHARD ERNDT, OF VIENNA.

are to be covered all over with figures of seas and mountains, or that our drawing-room hangings are to be smothered with representations of storks and dragons, but we have from this source also floral and geometrical designs of the most exquisite beauty, and enough of them already to furnish the material for the weaver and the printer for an entire generation.

Another improvement in connection with this subject is the feeling that has found its way into our drawing-rooms in favour of the patterns of some of the nearer Eastern nations. It is quite true that now here and

school of decorative art? Is it altogether true that we have never shown the faintest sign of the existence of such a power? Witness, alas! the borrowed patterns of all our best materials and the desperately original checks and stripes of our sixpenny cotton handkerchiefs. But supposing it to be true that we cannot create, we can at least copy that which is good and beautiful. Weavers are ready enough to work, and manufacturers are only too willing to risk their capital at the least encouragement from those who really hold the whip hand in the whole matter. Who are they? Why, the public of

course. The lazy, indifferent, uneducated-in-art public, who loudly complain of a tyranny which is at best but reflective. Notwithstanding all warnings and exhortations, the English matron or maid stands firm. Heedless of the commotion in the ranks of artists and designers and cultured people, the present form and shape of her dress remains as strictly at variance with the rules of art as before, while as to colour, she will not take the trouble to think of such matters.

There is nothing, it has been said, in which history repeats itself so surely as in dress, but we must go a good way back to rival the form and colouring of the present. Probably the same pliant will (in dress) which has lately submitted itself to the torture-inflicting "cuirass," different only from the cuirass of the ancient warrior in that it is much tighter, and altogether forbids the free use of the lower limbs, will by-and-by accept the "farthingale" as a relief. In the meantime we are passing through a stage of tight lacing, not only above but below the waist, which is for the wearer hard to endure, and makes us almost wish for the return of an era of crinoline and more petticoats. 'Tis an ill wind that blows nobody good. This would bring luck to the hapless "Lingeriste." If the modern "Princesse" is to rule longer, one can't say what may happen. The vision of the maidens at lawn tennis in their pink silk stockings rises before me again. Let us conclude our discourse before I become a thorough reactionist in affairs of the toilet.

This is the substance of our conversation. I do not say that we three men have contributed much to the solution of the difficulties surrounding the great dress problem, or have added largely to what is already known about art principles in relation to colour or form in dress, but this is not intended as an essay, only a *précis* of our chit-chat, which must be taken for what it is worth.



DESIGNED BY F. W. MERKELBACH, OF GRENZHAUSEN.

FRESCO PAINTING.

A portion of a lecture, by

N. H. F. WESTLAKE, F.S.A.

FRESCO has always had the merit of being the medium best adapted for recording pictorially grand works, most of the greatest paintings are in that vehicle—unsuited for the production of those small pictures which are usually placed in gold frames, and hung first in exhibitions and then probably in some dining room, the most saleable of all works of art. In our opinion, fresco has never in England had a fair trial on its simple merits; too much of the character of the easel picture has been asked of it, and eyes accustomed to oil have wanted a longer experience to comprehend the qualities of fresco to become used to its special qualities. Now, what should we aim at in fresco-drawing? Let it be as perfect and as grand as you like, not too academical and drawing-masterish, although this ought hardly to be said to students, for a characteristic style of drawing comes only after having learned to draw; and yet it is our impression that we all learn to draw too manneredly, and this manner too often is taken as the correct style; the drawing is thought by many not to be drawing at all without it. What is the remedy? We should say careful, but at the same time rapid sketching—getting the character quickly—trying the memory often, and comparing a sketch done from memory with the original. Passing from the drawing for fresco to designing, the design may be complicated or simple in linear form and composition, but it must be essentially adapted to a simple gamut of colour. It is useless in fresco to attempt the qualities of colour attainable with other materials; we must always restrict our colours as much as possible to the earths; to colours that will not be affected by new lime, and we dwell on this point, because the early decay of fresco is often the result of using stale lime—which, it is true, allows the use of more colours without injury, but never makes a permanent surface. The lime must have causticity to melt the silica of your fine sand, to exude a siliceous and hard surface over the wall upon which it is placed. The painting should be also on a mixed plaster of fine sand and lime, made fairly thick to dry the more slowly; and we think that art students would have great enjoyment in plainly decorating the walls of ordinary houses with simple subjects and compositions, if they would learn to follow a plasterer rapidly without much joining, as no doubt the ancients did.

Take the wall as it is, and on the day it is plastered get a man to put a few lines around it, whilst you go right to the centre, and paint a frieze "du coup," with a few outline figures tinted with earths—ochre, burnt ochre, the umbres, etc. Avoid complexity of colour. It would be a good plan to first make trial upon the walls of

some cottage room or two for practice. And here it may be stated that the beauty of a "fresh" wall is like the beauty of the surface of a geranium leaf, it is as velvet, whilst oil and encaustic are as cloth. You must use your colours in the simplest form at once, and strongly avoid going over the work twice, as doing so has a tendency to produce darkness and to destroy luminosity.

Tempera—distemper or body-colour—are also suited to the same work. This kind of painting can of course be done when the wall is dry. The best tempera is however done on the drying wall, keeping it wet during the process with water; the difficulty is to find a good mordant. Avoid size or glue, and use egg and vinegar, or isinglass, or strong ale, as these are better. Although tempera is capable of finish, the mordant is an element

you will find your best models for those studies. It is wonderful that some of our great institutions do not devote their energies to fresco painting, only for which there can surely be but one reason for this neglect. From oil painting to water colour pictures in frames is of course an easy transition, and from water colour pictures in frames to cartoons painted in water colours for fresco, tempera, and glass, ought to be also simple in gradation.

Water colour copies of fresco originals in little frames—well, let them be nice water colours painted in well chosen and permanent pigments, and placed in good mounts and frames—sell, and they ought to sell; and these little pictures are a capital introduction in practice to the larger water colours, as one may call them, fresco and tempera, or distemper: the practice of one renders



MOORISH EMBROIDERY IN GOLD AND SILVER OF THE CONVENTIONAL TYPE THROUGHOUT THE WHOLE OF THE TURKISH DOMINIONS.

of early decay, which is ever present in a damp climate like ours. Wax painting has not so sweet a surface as fresco, but it is next best for large work. We had occasion to examine a little while ago the old work in S. Clemente at Rome, which has the reputation of being done in fresco, but which we are almost certain is wax, for the Romans either used wax freely in their mural works, or waxed their frescoes and tempera pictures after they were finished to ensure their preservation, somewhat in the way that the cinquecentists varnished their tempera paintings, or as the mediæval tempera has been varnished for its better preservation.

At the present time in England, religious and historical subjects, excepting from a very few men, are limp and mawkish; it is not in the English school of oil painters

the others easier. Your designs also for large pictures must be done in this way, so that nothing can be better for one's prospects than the practice of making sketches and designs in water colours, for even if you do not sell these, the practice will be like casting your bread upon the waters; nice little copies of the old tempera masters done in body colour after Crivelli, Mantegna, Fra Angelico, etc., etc., would be most excellent practice, and such work would command a ready market.

We have spoken of the manner of drawing cartoons for fresco, and have given our ideas gathered on the subject from many good ancient authorities. There are of course varieties of styles, and styles developed of a very conventional character; all these are good in such work, provided they never degenerate into absolute mannerism.

Of course cartoons for tempera, water-glass (which is not recommended), or encaustic, can all be transferred to the wall in the same way. The best plan for this purpose is to put some dry colour on the back of the cartoon or on the back of a tracing of the cartoon, and go over the outline with a stylus of hard wood or agate. For the cartoons for mural work need not be shaded or coloured, as after tracing the outline you can work from your small drawing and studies; there is, however, an exception when it is desired to try the effect from the cartoon *in situ* before it is executed.

Cartoons for glass, mosaic, tapestries, etc., require much more labour, as in these cases nowadays the draughtsman of the cartoon is seldom the executant on the material, as he generally is in mural painting. He is, however, present at all times, working side by side with assistants and pupils, each of whom as far as execution goes is nearly an "alter ego," so thoroughly trained to the composer's style of working. This is amply illustrated in the pupils of the old masters who worked with them, even Raphael was Peruginesque, and Giulio Romano was Raffaelesque. But we must not in speaking of cartoons return too much to the character of fresco, but in treating of its practice, of course we have been obliged to leave out much detail, considering that study, practice and books are ample for your progress. One thing, however, we overlooked, and that is, the reason we gave to commence on the walls of small houses; it is this—that although we believe in the durability of fresco, it is just as difficult to get that to stand the continual action and reaction of dryness and humidity which is so strong on a thick wall, as it is to preserve any material under the same conditions, and it is our opinion that what we may call the inhalation and exhalation, is in some way as a matter of force related to the thickness of the wall. We may remark that plaster ceilings on laths, and frescoes generally separated from the main wall and its action, by a structure of lath and plaster, for fresco—and slate for other materials, have endured best.

Mosaic is a material of glass or ceramic ware, the mosaic of fine art is glass, ordinarily and in style Roman or Venetian. Many vigorous attempts have been made to re-establish it amongst us, but it seems to take root very slowly amongst us on our English soil. Venetians of course have the cheapest labour, the longest experiences, and the best market, and as yet Englishmen have done the best work in mosaic work in modern times; but they have been competing we fear with a sad loss. We are not disposed to like its revival, although it has certainly been fairly well rendered to some of our English drawings. The modern restorations at S. Mark's at Venice no one can admire. If the art were ever revived here, we should beat that, as we have already beaten the world in glass windows. The Italians also have relinquished it for fresco. We are not underrating its beauties or its excellencies; but we think its popular revival about as probable as the revival of the Ancient

Greek language. We do not recommend students to do more with mosaic than to study the manner of ancient examples, in case they may have to design for it, and be ready—that is all; it will not really endure in our climate, as it was expected. Tiles are even worse than mosaic, and excepting for domestic decoration or garden wall ornamentation, all we have seen are very unsatisfactory; in fact, all those appliances fixed to the wall by means of cement, are only *as durable as the cement* that fixes them, and we ask, Will not the humidity or any other cause of destruction have the same effect on the destruction of these, as on painting. At any rate, the demand to any extent for these things seems too improbable to require more than a passing warning to those who contemplate embarking in them.

INDUSTRIAL ART AND FINE ART.

"A SPECTACLE for the gods" in these days is an artist of the old Fine Art School who, finding his portraiture and historical occupation gone, would adapt himself to Industrial Art requirements. The thirty or forty years that have elapsed since he drew from the Antique in the Royal Academy and studied old Masters in Italy have brought him nearer and nearer to many facts concerning his chances in life, while he has the crushing knowledge that Money is the gauge of Art, as of almost all other things, in this country. Romance, Zeal, Aspiration, Self-importance, all that in his younger days were fascinations and realities wherein he lived and trusted, have become phantoms, and in his opinion his life has been sacrificed to the inappreciation of Art on the part of his countrymen. That he, trained to paint historical pictures, should be a designer of ornament for a manufacturer, and compelled to produce such work as the multitude will pay for, is to his conscience cruelty. He is a curious product of our British Art School in its infancy and of the dilettante who, until recently, dictated the laws and conditions of Art to a limited public. That he is not a successful designer of ornament is inevitable; that he is altogether a most unfortunate result—costly, untractable, unteachable, opinionated, and eccentric in taste although clever as a draughtsman, are obvious defects which considerably test the patience of those who have transactions with him. Only a minimum degree of hope is there that he will be of service to this generation; and a fortunate thing will it be if the next generation is not troubled with producers of his class.

It does not follow, nor is it now assumed, that he is only a mediocrity, or a failure through some defect of character or neglect of opportunity: he may be regarded, and we now consider him simply as the result of such

Art-teaching and encouragement as this country was, one time, content with. With him as an example, it appears desirable that in the education of students at the present time every available means should be employed for putting an end to the existence of artists of his type. They should be as persistently disabused of their conceits in the future as they have been upheld therein in the past.

Managing committees and masters of Government Schools of Art, uncertain as to the purpose or greater

continue the fostering of more useless artists. The introduction of sounder views and tendencies is a troublesome and apparently disheartening task, not to be attempted now, it will be urged, by any committees, as it is a work to be accomplished by time and experience. "There are not six men in this country," said Lord Derby at Liverpool the other day, "qualified to speak authoritatively upon art." And so, from Lord Derby down to the more humble of pessimist picture-dealers, the same story is repeated, as though there were no facts, no laws, to be



FAIENCE JARS AND TAZZA IN PORCELAIN AND ENAMEL. BY E. COLLINOT, OF PARIS.

usefulness of the institutions under their control, should have no hesitation whatever as to their paramount duty of enforcing upon students the broad distinction between Industrial and Fine Art—art marketable and art speculative. Neglect of this duty is allowing the seeds of mischief to be sown in the young student mind, for the rearing of sorrowful disappointments and reproaches hereafter. It would not be difficult to point out certain provincial government schools wherein the feeling and tendencies of the masters and managing committees are most unsound upon this elementary point, and likely to

ascertained; and those functions of the human mind wherefrom Art, to idle observers, mysteriously exudes to please and mystify those interested, were functions as inscrutable as those of Faith.

It is time this shelving upon accident and mystery ceased, and that such facts and conditions as practically exist received attention. From one extreme to another is a long and not often a wise step: in this case it may be a step towards the right one. Hitherto the idea of Art has been associated with Genius, and the British public have been unable to grapple with it: associate

Art with Money, regard it as a mercantile commodity, and British instincts and sound sense will speedily comprehend its purport and respect it like Bank of England notes and scrip.

To the dilettante of the old School this association will be shocking; nevertheless, it is a question whether Art can be aided in any more effectual manner than by establishing it as a mercantile commodity on a money basis of value? It is so established, already, in an unrecognised degree. Bad Art will destroy the value of good Gold, while good Art enhances the value of the Iron-founder's pigs and scrap, and sells clay for far more than its weight in sovereigns. The taste and handicraft in the service of the Iron-founder and the Potter confer infinitely more benefits upon mankind in general than they would had they been engaged upon cabinet paintings or marble statuettes; bought and hidden as paintings and statuettes are in these days. Upon the former work an artist's means of existence are ensured and the work itself is enjoyable; in the latter, existence is a speculative matter, and the work may cause regret and pain. The work of a man of exceptional ability may sometimes be its own reward, whether bought or unbought; when it is its own reward and of great excellence, it is work that an individual artist should have the fortitude to accomplish, be its fate what it may. Yet the fact that individual artists should exercise their undoubted genius makes no rule for the course to be adopted in Government Schools; nor does it establish a principle whereby artists in general will contribute to the common prosperity or fulfil their own duties. Broadly speaking, the conditions whereon Art should be studied by students at the expense of the State, by students at their own expense, and by critics who appraise, applaud, or condemn, should be primarily with a view to its marketable money value.

On that basis the public understand Art. They have a lively perception of its money value. They tolerate and pay cheerfully for what is reasonably costly. At the same time, they withdraw the moment they discover there is a fictitious forcing of prices in the sale of works they collect; their respect is not increased for an artist who asks enormous sums for his productions; and they prefer to secure the work of a less applauded man and compare it, to the discredit of extravagantly-paid-for productions. Within living memory, no unexpected exposure, mercantile collapse, or other untoward financial event has given such a universal shock to the public conscience as that sustained and expressed when the announcement was made that over ten thousand pounds had been paid for a portrait painted by Gainsborough!

Remembering the feeling excited by that transaction, he will be more than ordinarily bold who denies that the public are interested in Art, or questions the propriety of bringing the public mind to its higher consideration from a money stand-point.

Consider also what money is now doing for Art of all kinds. There is good in all Art that is real. So long as

the forms and colours of Nature are appreciated, there can be no censure cast upon those who set up Art in the public streets or lock it within their dwellings, as Nature hides beauties in thousandfold from common view. There are degrees of benefit in Art, as there are qualities. Without considering whether degrees or qualities of Fine or Industrial Art are the more excellent and precious, it is sufficient to know there are qualities in Industrial Art producing effects of which little heed is taken although they are unconsciously felt.

Wherein is the charm of Bond Street, Regent, Oxford and other West-end Streets; of the north side of Princes Street in Edinburgh, and of certain streets in other towns? The treasures of the Royal Academy Exhibition are not displayed in Bond Street, or those of the Royal Scottish Academy in Princes Street. Paintings are there, but the charm of these places does not flow from the few paintings; it is diffused by the endless objects of Industrial Art displayed in the shop-windows. That Art is not degraded by the ideas of wealth which are instinctively associated with it in those thoroughfares; Art and Wealth there are compatibilities, truthfully and by right associated. Go from those places to the large money-making towns. Select Manchester. Manchester claims to be an Art-centre, and to be the first of provincial cities in a money-making capacity. What do we find there in the form of every-day, or what is distinctively known in this journal as *Industrial Art*? Less evidences in its whole miles of streets than there are in fifty lineal yards of Bond Street. There are leading streets in Manchester and Salford wherein the goods displayed for sale, in quality and mode of display, make the mind dejected and sick. To speak, in such a place, of an Art-centre, of thousands of pounds paid for single paintings, of Fine Art and local patronage of British artists, merely creates an impression that Money may debauch Art, and will debauch it. That which is locked up and paid for is not very important while so little is for sale to the money-making population for common use. The alliance between Art and Wealth in Manchester can only be ephemeral; it should not be regarded by a student as an indication of the patronage and encouragement he has to expect; as it is no indication of an appreciation of Fine Art, and what money basis it has is a false one.

Another illustration of Art upon a money basis may be found in much maligned, and of old, nick-named, Birmingham. There, Industrial Art has one of its chief houses in this country. It thrives because it is made purely commercial; the commercial element being so powerful a support, that possibly no other town in the world could produce for an immediate demand so much good Art of many kinds as Birmingham could supply at any moment out of her own resources. This is not far from being an incontestable truth. Nevertheless, proclaimed upon the house-top at home, circulated among the centres of rival industries abroad, Birmingham would not be pricked with conceit or exhibit any artistic vagary

in its pride of success, for those who have made Art what it is there, know the difficulties they have had, and others now standing in the way of progress. Give us certain power, they would say, and we can hold our own against the world ; but they would confess the handicraft now engaged is not equal to the mind employing it. There will be none of the old nonsensical British traditions concerning artists as "unappreciated men," advanced as pleas in Birmingham. Art there is business, transacted under the eyes of the world. It keeps the banking houses employed, and illustrates what may be done upon the ladder when the bottom is planted firmly in the workshop.

The State should locate Art at the top of the ladder, is

on Art topics are among the means employed by the Liverpool Art-club to bring a knowledge of Art to the public. The recreation is agreeable, no doubt, and a pleasant change from a "Gentleman's Concert." We do not suppose the Liverpool gentlemen contemplate their club proceedings will be of more service in introducing unknown artists, than concerts for the performance of standard music would be in bringing out well-known composers. No great harm is done by them, while the good is somewhat inconsiderable. The reply given at a recent meeting of their club by Lord Sandon implies that it was necessary to impress upon their numbers the undesirability of State patronage of Art. The Liverpool ladder is planted upon



GREEK VASE OF ARCHAIC TYPE.

a cry heard in other quarters nowadays. It has recently been heard in Liverpool, another "Art-centre."

Liverpool, by the proceedings of its corporation, its Art-club, and in other ways, gives frequent expressions of opinion, and there appears to be a strong feeling in the town that great corporate efforts should be made for the encouragement of the most rare and high forms of Art. Considerably in advance of all that Manchester or any other town entertains are the views discussed in Liverpool. They are not practical efforts like those of Birmingham ; the ladder in Liverpool is not planted in the workshop. Social gatherings in a club-house, dinners to artists of reputation, after-dinner speeches and papers

the public treasuries, imperial and local. As becomes a wealthy merchant community, nothing less than grand productions will satisfy it. We hear, accordingly, of proposals for Art of a monumental character in public places, and see the latest valuable result of those proposals in the Fine Art Gallery given to the town by the Mayor, Colonel Walker. Another member of the corporation has offered at his own cost to place a mosaic picture, or fresco, on a wall of the council chamber, and other donors live in the esteem of the Liverpool public. Liverpool sent Gibson to Rome and gave him commissions. More recently it has contributed, with another place, towards a similar service to Mr. Warrington Wood, who, originally

an architectural carver in the adjoining town of Warrington, is now a sculptor in Rome. Admirable things to do are many of those done by Liverpool; possibly no greater good to high Art could be done than that of sending to Rome, or on Art-travel, and commissioning, promising young men. More management of that kind is precisely what is needed. Yet it is only by those who have clear conceptions of what is "Fine Art" and what "Industrial Art," that such encouragement should be given. Especially should they consider whether an artist who can produce every-day, or Industrial Art, is not of equal value to his generation with the artist who executes Art for galleries, or statues like that of Sir Robert Peel by Gibson, in

certain. British dilettantism will pin its judgment and culture on Liverpool. In limited circles of painters and dealers, Manchester will be told the great thing of all is to have a ready market where good Art will find purchasers, and in that respect Manchester does its duty and sets an example.

The reply to the above query cannot be given by any of these. It will be given in the lives of the thousands of Art-students of the present time—those whom the State is now teaching, and those in the studios and ateliers of artists and manufacturers. By Art they must live, and the sooner they analyse its money aspect and make their choice the better for them. The future is coming to them



JUG OF GLAZED WARE IN RED, BLUE, AND BLACK LINES. BY LÄLTZER, OF EISNACH, NEAR GOTHA.

Westminster Abbey? The views of Fine Art in Liverpool, high and theoretical as they are, propounded also with the traditional reticence upon the money element, are nevertheless dependent upon money considerations. Open the public treasuries, thereby make the demand for high Art, and high Art will come, is, in broad summary, the Liverpool theory.

Is it from such conditions, in Liverpool, in Manchester, or in Birmingham—excluding those of London for more fair comparison—that the real growth of Art in this country will be possible? British instinct and business capacity will reply that in the conditions of Birmingham, where Art makes money, the chances of success are more

as they prepare it. Excellence in their work alone will make their lives profitable, but there will be no profit unless there is a demand. Whether it is offensive and intolerable to pin Art on Money considerations or not, the artist whose Fine Art will not sell, can only be an amateur, and his Industrial Art for which no market can be found must terminate in "a lamentation," as truly as the iron of the unskilful blacksmith, which, growing less and less in his attempts to mould it, will make neither horse-shoe, donkey-shoe, staple, nor tenpenny nail, and finally, going out of sight in the water, makes "a hiss!" and so end.

Art, though a seductive friend, is a tyrannical master.



ARMOIRE. DESIGNED BY O. B. FRIEDRICH, OF DRESDEN.



REVIEWS.

1. *L'Or et l'Argent*. Par L. Simonin. Paris. Hachette et Cie. 1877.
2. *Gold: or Legal Regulations for the Standard of Gold and Silver Wares in different Countries of the World*. Translated from the work of ARTHUR VON STUDNITZ by Mrs. BREWER; with notes and additions by EDWIN W. STREETER. Chatto and Windus. 1877.
3. *The Taxation of Silver Plate considered as Obstructive to Art Progress, and as an Insurmountable Obstacle to Technical Education in its Application to Silversmiths' Work*. By ED. J. WATHERSTON. A Paper read at the Social Science Congress, Aberdeen, 1877.

M SIMONIN, in an interesting volume, gives the result of his observations and experience as a miner in North America. He has popularised the subject in order that the unscientific reader may be induced to read his memoir; and although he plunges at once into his subject by introducing us to the first pioneer of the gold and silver regions of North-West America, and only lightly touches upon the ancient history of the precious metals as he approaches the conclusion of his very interesting little volume, he satisfies us by his neatly written memoir, that he has mastered all the details of the history of the goldsmiths' art from the earliest times, seeking in Egyptian records and the histories of Greece and Rome for such indications of the occasional fluctuations of the values of the precious metals, and fixing with some degree of certainty the relative value of silver and gold coinage at various epochs. The book contains many charming illustrations of famous works of antiquity, notably an amphora in silver repoussé work of either Greek or Roman origin of the time of the emperor Augustus (B.C. 20), representing on its surface scenes from the Trojan War. This fine work of art was discovered near to Bernay (Eure), with a number of others of a like character, now preserved in the Paris National Library. There is also a good engraving of a great silver-wrought

reliquary, gold-encrusted, being German work of the fifteenth century. We hope to give copies of them in a future number.

Mr. Streeter's work is directed to the more important inquiry respecting the value of hall-marked articles of gold. His argument is that all gold, worked into articles of luxury, should be at least of the standard known as 18-carat gold. This should be the material, and this alone, out of which every artistic production in the precious metal should be framed, so that gold objects sold as such, having a greater amount of alloy of some baser metal, should be refused a hall-mark and the manufacturer left liable to indictment for fraudulent trading. If a jeweller or goldsmith "desires to sell works of art which he deems to have a higher value than the material of which they are made, let him mark them with his own name, state the *value* of the composite matter (the carat value), and trust to his genius for the sale, and not to the falsehood of a cunning imitation of the hall-mark." Trade, under such conditions, he says, "would be less liable to ultimate loss from fraudulent appearances, and competition would be absolutely freed from injurious conditions and fine art in metal work might be expected to revive."

It is this latter observation which brings us to the consideration of the suggestions thrown out by Mr. Edward J. Watherston, who has devoted much time and thought to the subject of hall-marked silver; and being a practical member of the craft, who desires to see it relieved from the depressing conditions under which it at present labours, he deserves to be heard with the most serious attention. We have read with interest of the many curious expedients ministers of state were fain to resort to in the early part of this century in order to keep their exchequer, in war time, moderately provided. "Hearth money" and the "window tax" were amongst the more obviously unjustifiable means of raising the funds urgently demanded for defraying war expenses. No time was lost, however, in removing such obnoxious taxes the moment the urgent

necessity for their imposition was removed; but a six-penny tax on every ounce of silver, imposed in 1719 to pay for the Spanish war, was only repealed some forty years later, when it was found that its continuance had a serious effect upon the silversmith's industry. The American war in 1784 revived the tax on silver, which expanded in a few years to one shilling per ounce, and in 1804 it became a tax of fifteen pence. In 1815 it was raised to one-and-sixpence per ounce, at which level it has remained ever since. The author points out that since the free trade agitation more than twelve hundred articles of trade have escaped from taxation; every trade in turn has slipped through the meshes of the public tax-collectors' too finely woven net, whilst gold and silver, almost alone, have been too ponderous to escape, and remain, even at the present time, subject to the old war tax of 1815, for reasons which are hardly capable of elucidation. A quarter of a century ago electro-plated goods came into the market, and, being altogether free from taxation, have steadily grown in public favour. The question one naturally asks at this stage is, why has the tax been retained? The answer is twofold. It is easy of collection, and manufacturers are interested in its continuance. The Goldsmiths' Company collect £44,091 per annum; on an average of fifteen years, they receive one per cent. for collection; whilst to the trader a rebate of threepence an ounce is allowed upon unfinished silver. Thus "the more nearly the silver is finished the less the loss after marking," so that upon an annual trade of 120,000 ounces there is secured a profit to the manufacturer, upon the duty alone, of £1000 a year. To the argument used by the manufacturers of plate against the removal of the duty on silver, that the compensation required from the government for loss through existing hall-marked silver goods at present in stock would be more than any Chancellor of the Exchequer would allow, Mr. Watherston declares from authority equally accurate, with every other well authenticated statement put forth by him, that a sum of £100,000 would be ample for the purpose. To the inquiry, what would be the gain to the public if this trade tax were rescinded, the writer has a careful array of facts to satisfy the impartial reader, besides the excessive price charged to the public to cover the tax. The profit of the manufacturer and the retailer are the considerations with which we are more directly concerned. We quote the proofs brought forward to show how the tax is obstructive to art progress:—

"A visit to South Kensington would at once illustrate the truth of the proposition. Here we find scores of students whose object it is to work into the several branches of trade.

"A glance at the schools will suffice to show the great preference given by the students to those trades which are hampered by no restrictions, such as carpets, furniture, decoration, curtains, paper-hangings, brasswork, fenders, mechanical engineering, anything, indeed, but to the silver trade! And why?—because the silver

trade, being taxed, and consequently confined within the narrowest possible limits (the whole trade of the United Kingdom not amounting to more than £400,000 a year), offers no temptation to artists to adopt it as a profession. It is not the nature of a declining trade to attract labour or capital to it; whereas, the trades above named not only attract labour and capital to themselves, but offer the very highest rewards to artists of eminence for their successful development.

"Sixty thousand pounds a year is an excessive estimate of the aggregate nett profits of all the manufacturers of silver-plate in the United Kingdom, obviously proving the impossibility of high salaries being given to artists. How different is the state of things in America, where one manufacturer giving employment to eight hundred hands works up, annually, more silver than all the British silversmiths put together! It may be added that his goods are of highly artistic excellence, finding a ready sale in all parts of the continent.

"With reference to technical education, it is manifest that no scheme, however wisely devised, can benefit the silver trade until the tax is abolished.

"In the first place, for so unremunerative a trade, no one will care to be technically educated.

"Secondly, inasmuch as every scheme must include theory and practice, it is plain that so long as the tax exists, there must be a serious hindrance to the work of education. So long as a law remains in force that, before an article is put together, almost in its rough state, it must be sent to hall and a duty of from 12½ to 20 per cent. be paid upon it, it is useless to talk about technical education for the silversmith. The difficulties are, in point of fact, insurmountable. I apprehend that the first part of any scheme of education for the silversmith would be 'research.' First, find out what good work has been done in times past by reference to the museums of Italy, Vienna, Berlin, Dresden, Munich, the Louvre, and the Hôtel Cluny, where masterpieces of art are to be found, reproductions of many of which may be seen at the South Kensington Museum. It is lamentable to consider the extent to which the art of the silversmith has degenerated in this country since the fourteenth century, at which period England was pre-eminent in the production of silver plate.

"I find the following statement in De Lasteyries' *Bibliothèque des Merveilles*:— 'Nul doute que l'orfèvrerie anglaise du quatorzième siècle n'eût une réelle valeur d'art, car nous la voyons recherchée même en France, où plusieurs pièces de cette provenance figurent parmi les innombrables richesses que renfermait le trésor de nos rois. Dans l'inventaire de Charles V se trouve un fermail émaillé qu'il avait lui-même rapporté d'Angleterre, et dans celui de Charles VI une aiguillère, ainsi qu'un grand gobelet à pied et couvert, tous deux en or émaillé que Henry IV (de Lancastre) lui avait donnés.'

"To emulate these works should be the aim of the artistic silversmith. A knowledge of drawing, geometry,

and chemistry we must assume to have been acquired by the student. It is satisfactory to note that as recently as June 1876 there were upwards of 75,000 children being taught drawing in the London Board schools. Lectures must be delivered upon such subjects as mythology, archæology, botany, and chemistry with a view to enamelling and combination of colours. Modelling must be taught by an experienced professor. Then follow alloying, melting, flattening, hammering, casting, chasing, engraving, polishing, burnishing, colouring, and finishing. Nothing in the shape of taxation should be allowed to interfere with the freedom of the school.

"Upon these grounds I earnestly hope that in the interests of commerce and of art this unjust and impolitic tax may shortly be abolished."

Practical Lessons in Painting on China, Porcelain, Earthenware, Faience, and Enamel. By MADAME LA BARONNE DELAMARDELLE, Professor, and M. F. GOUPIL, Pupil of Horace Vernet. Translated from the French by GUSTAVE A. BOUVIER. Lechertier, Barbe, and Co.

The Second Exhibition of Painted China, noticed by us a little while ago, attested the great popularity amongst artists and amateurs of this elegant accomplishment. The want of a really practical handbook is often left unsupplied through fear that the book supposed to contain the proffered advice may be like too many of its kind, a mere catchpenny written by some altogether inexperienced hand. But this little memoir may be confidently relied upon for supplying all that the beginner may need to know when setting out bent on acquiring simple and at the same time practical instructions. Of course, it is possible to bring no artistic ability to the work, and in that case no great results may be hoped for. When, after every technical detail has been acquired, so far as treatment of materials is concerned, if there is any lack of artistic genius on the part of the operator, it is a pity that the experimental efforts should be completed by "burning in" such crude unfinished work. There are principles in art which must be, in some measure, understood before venturing to perpetuate work of this kind, and we strongly recommend the constant use of water-colours upon china or porcelain surfaces, before the amateur commences to use the pigments used for permanent work. When the student has acquired an easy facility of brush work which will bear examination, then will be the time to lay to heart the instruction so ably given by the distinguished authoress, whose work has been so clearly put before English readers by Lechertier, Barbe, and Co.

Art Needlework. A Guide to Embroidery in Crewels, Silks, Appliques, &c. Ward, Lock, and Tyler. 1877.

The work contains a sketch of the history of embroidery, an account of the materials and implements used, the method of tracing and transferring, a chapter

on colour and design, and one on patterns. At starting, the writer points out that the Berlin work of former years is now supplanted in ladies' esteem by crewels, and the old-fashioned cross and tent stitches are ousted by the older method adopted by the workers of tapestries, once more revived. Crewel is in advance of Berlin wool work, inasmuch as the one requires more taste and refinement, more brain work, in fact, than the other, where the stitches were methodically laid down in the coloured pattern. But it is in this matter of design that our amateur artist fails altogether; for when left to her own devices, the crewel worker is capable of committing the most wanton outrages on good taste; and whilst the author takes little account of what he is pleased to call the "minor matters" of detail, we are forced to contend that it is in the minor details the most evident failures are made, evident especially at the Exhibition of Needlework at South Kensington. It is a fact that, trivial as needlework decorations may seem to the uninitiated, the necessity for culture and a mastery over the technical details of work of this kind is much more needed than the many will allow.

The historical part of the subject is rather meagre; a few dry details taken at random are made to serve the purpose of an introduction. It is not until we are fairly engaged in the subject that we begin to perceive how accurate and sound is the knowledge possessed and imparted by the writer. Whilst it is admitted that the work done in convents, and in trade *ateliers*, "is always superior to amateur work done at home, the reason is not far to see, because at home there is neither the daily application nor the steady perseverance which are always needed to make the perfect artist." In the chapter on materials, we are surprised to find that "the fabrics suitable for embroidery are not very numerous, and with very few exceptions are exactly similar to those that were in use centuries ago." Linen, round towelling, and "crash," or grey linen, are the most affected at the present time for crewels; but our readers need not be reminded that the embroidered kerchief whose loss Othello so deeply deplored was of more valuable stuff; or of the embroidered robe constructed by Dejanira for the destruction of her faithless lover, or even of the fine table nappery described by Lady Montague as being used by her Turkish hostess, in 1711, at Stamboul. "The piece of luxury which grieved my eyes," says that ingenious writer, "was the table-cloth and napkins, which were all tiffany, embroidered in silk and gold, in the finest manner, in natural flowers. It was with the utmost regret that I made use of these costly embroidered napkins, which were as finely wrought as the finest handkerchiefs that ever came out of this country. You may be sure that they were entirely spoiled before dinner was over. After dinner, water was brought in gold basins, and towels of the same kind with the napkins, which I very unwillingly wiped my hands upon. 'Tis a great part of the business of the older slaves to take care of the younger girls, to learn

them to embroider, and to serve them with all the care bestowed upon the children of the Turkish family."

It is a pleasure to see the growing tendency of writers on art industries advocating the propriety of copying Japanese art in embroidery; the skill of the Japanese is

School of Art Needlework Exhibition in the spring of this year. Great sprawling lines, meaning nothing, but evidently intended to represent quaint stems of reeds, only succeeded in simulating the appearance of badly repaired, irregular rents in the woven material they were



CUP. DESIGNED BY A. HIRSCHVOGEL (1503—1552).

everywhere admitted, but the art by which a large surface is made to appear quite full of a design, when even only a very few touches are expended upon the work, is the very essence of the art in which our amateurs fail lamentably. This was seen in many poor imitations of Japanese and other Oriental work at the Kensington

intended to decorate. The elegant proportions of the several parts of a Japanese design cannot be understood without study, although the effect produced by the accomplished artists themselves is readily accepted as most agreeable to the eyes of even the most inexperienced on-looker. It is therefore absolutely incumbent

on every worker in crewel or any of the other forms of embroidery to go through a patient course of geometry, and the rudiments of the art of drawing simple forms of natural objects correctly. As we have no school in England where the principles of design based upon the more correct teaching of the Japanese may be acquired, it might be well for our amateurs to practise continually drawing from small sprays of elegant foliage, with a brush filled with colour, until they acquire that freedom of hand which is the basis of all progress in this form of design.

1865-1870. The origin of these stations does not date back earlier than the fifteenth century; the legend of their origin is that "a citizen of Nürnberg, on his return from Jerusalem in 1477, resolved to erect 'stations' at certain distances in the streets, on a scale that would represent the actual positions in Jerusalem. Unable to fix these distances with anything like precision, he returned to Jerusalem to take accurate measurements, and ten years later he commissioned Adam Kraft, the sculptor, to supply the proper marbles. The first station was inserted in the wall of his house, and the remains of



FRESCO FROM THE GALILEE PORCH, DURHAM. (CIRCA 1154.)

The Way of the Cross. By N. H. F. WESTLAKE, F.S.A.
Burns and Oates. 1877.

The author and artist, Mr. Westlake, has reproduced, in two sizes, copies of his fine originals in the Church of St. Francis of Assisi at Notting Hill. The smaller edition contains, besides the drawings, appropriate prayers derived from the *Cæleste Palmetum*. The drawings are reductions of the cartoons, the first ever designed for the purpose in this country, in the years

these sculptures (casts of some are to be found at Kensington Museum) testify, at the present day, to the ability of the artist."

The series of drawings remind one of the art of Albert Dürer. The figures, few in number, are admirably posed to assist the devotional feeling they are intended to incite. There is a total absence of background or excess of decorative accessories, and the work generally is quite equal to the finest of the most recent productions of this accomplished artist.



NEW INVENTIONS.

MR. CORNELIUS has recently produced an enamel which may be applied with a brush, in the same manner as a varnish. His original enamel has been used on the wood-work of the saloons and the metal shafting of H.R.H. the Duke of Edinburgh's steam yacht the *Galatea*; on the Trinity House vessel the *Beacon*; on the two guns taken by Lord Nelson in 1801, and the ebony wood fittings of the museum at the Royal Naval College; on scagliola work at 9, Mincing Lane; on wood-work and painted walls at the City Club, Ludgate Circus; on Whitburn's xylographic decorations; by coach-builders; by Mr. Kershaw, of Baker Street, and other well-known West-end decorators, and on photographs and paper-hangings. In all these instances the enamel has been applied with a rubber in a similar manner to French-polish, the work produced being cheaper, more durable, and in every way equal in effect to the best French polishing, as well as being uniformly good, no matter what the material operated on—wood, metal, scagliola, photograph, or paper. It has also been found to withstand the effects of sea atmosphere and salt water, neither hot nor ordinary cold water affecting it.

Its one disadvantage for some purposes has been the labour required in rubbing or polishing, the material itself being not dear or wasteful in the quantity required. Mr. Cornelius has now modified his production, and manufactures an enamel which can be applied in the same manner as a varnish, with a brush. The appearance is remarkably good, and we believe our readers, who know the practical value of a good article of this class, would do well to give it a trial. It dries very rapidly. It will not crack, blister, or "sink in;" nor will it—judging from the enamel which has stood the test—become discoloured by exposure to the atmosphere. The secret of its value is that the amber of which it is manufactured is "run" cold. In other varnishes and enamels the gums are "run" by heat, whereby some of their virtues escape, being evaporated; Mr. Cornelius claims that no such escape is possible in his method. We have tested the practical application of both the enamel for polishing and that for brush-work, and are so

well satisfied that we do not hesitate to recommend it on its merits. It will be found a boon to Industrial Artists.

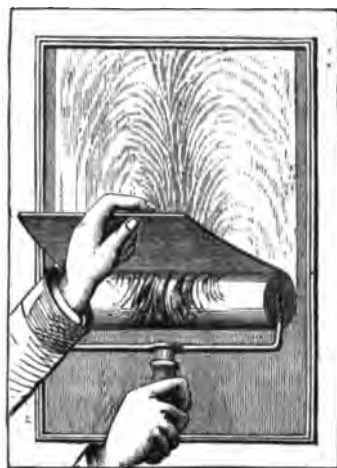


THE WOOTON CABINET SECRÉTAIRE is really a very admirable writing-table, surrounded with every requisite for literary work, or the general purposes of a household. The business man, if called away from his desk, can close up and secure with lock and key any work he may be engaged upon without a moment's delay. Hundreds of places in the thickness of the doors and body of the cabinet are provided for storing documents, ledgers, account books and stationery; here are shelves for a small library of books of reference; here are drawers of sizes to suit every want, and pigeon-holes for thousands of letters and business documents. A flat key of most ingenious construction secures all the apartments and drawers in the cabinet, which occupies but very trifling floor space. The style of these cabinets will recommend them to people of taste. The convenience is fully attested by the numerous letters of commendation the manufacturers have already received, and people living at a distance, in the colonies and abroad, can do no better than provide themselves with a Wooton Secrétaire.

AN IMPROVED GAS-HEATING smoothing-iron has been patented by Mr. Petherick. The gas is conveyed through the handle of the box iron, where it is associated with ordinary air for the better economy of the gas by means of an elastic tube and a Bunsen burner; the heat is distributed from a number of small jets in the interior of the box. If the laundry-maids, who are proverbially opposed to all improvements made on their behalf, will only consent to adopt this great improvement, the gain will amply repay them for any sacrifice they will feel constrained to make by the admission of so great a novelty.

SOAP MANUFACTURERS will find it to their advantage to use finely ground sawdust as a detergent instead of the usual materials used hitherto. It is said that a saving of one-third of the soap is gained; there is less soda, and the soap is better made. The analysis by the new method gives grease 44%, soda 6%, wood glycerine colouring matter 10%, water 40%.

NOTES.



OF PAINTED IMITATIONS of natural wood there is no limit in house decoration, from the old-fashioned and now happily almost obsolete work of the conventional house-painter to the highest and most refined copies of choice foreign timber, which raise the labour bestowed upon the work to the dignity of art properly so called. Of all patterns oak—being the most enduring as well as the most familiar—is generally selected.

Yet in oak graining there are wide differences of opinion as to treatment, if we are to judge by our every-day experience; and, considering the ease with which the finest oak effects may be produced, it is to be regretted that more care is not bestowed upon even the commonest objects so treated.

Usually the decorator, after he has prepared the painted surface, *secundum artem*, proceeds to pass over his work a comb, removing some of the colouring matter, to display the lighter colour beneath, and heaping it up in places, produces every gradation of depth he may require, from yellow to dark brown. He trusts to his haste and the varnish brush to satisfy every requirement, utterly indifferent to success or failure so far as the design is concerned.

We saw lately some specimens of oak so exactly represented in colour, grain, and texture, we were fairly deceived by the seeming genuineness of the material, the short, broken, and yet boldly defined lines or pores, as the vertical sections of the medullary rays are called, such as we see in rose-wood, mahogany, teak-wood, walnut, bay-wood, &c., were so admirably rendered that it is to these novel effects we attribute the success of the imitation. These pores or lines are easily produced by means of over-combing rollers charged with colour, which are passed over the work at the proper stage. These rollers can be procured of Messrs. Brodie and Middleton, Artists' Colourmen, Long Acre.

THE MARTIN WARE displayed in the show rooms of Messrs. Martin of Brownlow Street, contains many hundreds of hand-wrought designs in glazed pottery of a rare character for beauty, comparing well with other establishments of the same kind. This ware, beautiful in colour, displays the greatest fertility of invention in the subjects and patterns selected. Every article shows the most painstaking care in its production, and the prices are most reasonable. Massive objects suitable for the decoration of brickwork in walls or terraces, having texture and glaze of a quality to harmonise well with their surroundings, choice beakers for use or decoration, vases of great size and classic form, and numberless small objects, each perfect as works of art. As we stand and admire the varied subjects we marvel that *amateurs* have not given more attention to this elegant art, in our opinion as attractive as painting on china or crewel-work. There would be no difficulty to contend with in the progress

of their manufacture, since we feel confident that many owners of kilns would undertake the firing of works produced at home and forwarded to them for the purpose.

WINDOW-GLASS is growing in popular esteem amongst the advanced Japanese, who up to quite recently held to their old-fashioned paper-filled window frames with a tenacity peculiar to their old civilisation. During last year, twenty-two thousand cases of glass were imported into Japan, being twice as much as the consignments of the previous year.

A SUCCESSFUL IMITATION of Gobelins tapestry has been produced by Mr. De la Montagne, of Anvers. The designs worked on Flemish tissue are admirably rendered, the green and red colours used stand out with fine effect from the general background of sombre browns in which the accessories are made to blend with all the careful rendering of Ostade, or Jan Steen, or Brouwer, whose works they are made to resemble to a very remarkable degree. The subjects selected are original, however; in one, a village barber and in the other, a kind of Sancho Panza, figures as the motive. Wreaths of fruit, foliage, and flowers, grandly and broadly treated, enclose each design, the general effect is most pleasing; this new industry is sure to find many adherents amongst skilled needlewomen.

SOME LADIES of Chicago who are blessed with ample fortunes, have formed themselves into an association for the purpose of providing funds to assist young female artists during the term of their probation in the art schools and whilst travelling abroad. They have also created a fund, out of which they hope in time to be able to make some provision for those who have grown old in the profession of artists without being able to make any provision for their declining years. This enthusiasm in the cause of art is a healthy sign in a new and flourishing state, and speaks well for the culture of American ladies of independent means.

EXCAVATIONS in Mount Caburn, near Lewes, by permission of the owner, the Right Hon. the Speaker, have resulted in the discovery of some few objects of interest, belonging to what is known as the later Celtic period, consisting of quantities of fragments of British pottery, with specimens of early industrial arts of the ordinary kind. Knives, a battle-axe, and a spade-shaped implement or weapon of iron, a comb of bone of uncertain date, and the remains of a wooden stockade which helped to indicate the plan of the settlement. There were small chambers constructed for the accommodation of two persons in a sitting attitude, the object of which was not made quite clear, and a depression sixteen feet in depth, out of which (from the numberless fragments still found) it is supposed that flint for the manufacture of arrow heads was derived. Bones of the domesticated animals were found in great abundance, and after a patient examination the disturbed earth was replaced with fitting care.

SEVERAL MEETINGS of the Kidderminster School of Art committee have recently been held to consider the urgent want of proper accommodation for this important institution. A plan has been devised which, with Alderman Goodwin's sanction, will enable the committee to carry out part of that gentleman's scheme, by building forthwith, at an expense of 2000*l.*, a suitable building for the Art School on half the site offered, leaving the rest to be afterwards completed by the erection of rooms for science classes, etc. Plans for carrying out this partial scheme are now advertised for. Mr. John Brinton has been kind enough to say that if the means are not freely forthcoming, he will allow his offer of 500*l.* made to the complete scheme, to hold good for the Art School alone.

AT A RECENT MEETING of the Batley Chamber of Commerce, Mr. Samuel Jubb, J.P., the president, reported that a deputation from the chamber had waited upon the committee of the Yorkshire College of Science to ask if they could provide a teacher to give instruction in the art of weaving in connection with a weaving-school proposed to be established at Batley. The committee informed them that whilst they would be glad to do all they could to aid the objects of the deputation, they had no objection to concede all they asked, on the ground that they would be expected to do the same

on the Continent and in Glasgow. It was resolved that a technical school in connection with the worsted trade be established in Bradford, and that the offer of the Council of the Mechanics' Institute to initiate it be accepted. A committee was appointed to make inquiries, prepare a scheme, and furnish an estimate of cost.

THE MOST SUITABLE site for the Egyptian obelisk in London is undoubtedly in front of the Bank of England, the Royal Exchange, and Mansion House; these great



HERALDIC DEVICE OF ALBERT DÜRER.

for other towns. A long letter on the subject was read from Mr. O. Nussy, chairman of the textile industries department of the college. After some discussion as to what steps should be taken in the matter, a committee was appointed to draw up a report to be presented to a future meeting.

A JOINT COMMITTEE meeting of the Councils of the Chamber of Commerce and Mechanics' Institute has been held under the presidency of Mr. J. Behrens, when valuable information was given as to the working of technical schools

buildings, from their relative positions, would in no wise dwarf the monolith. They would besides have an affinity to the monument in various ways, and strangers visiting the City of London would be forced to admit that this old relic of an older civilisation is fairly placed in such a position, when they read in their guide books that the site itself is perhaps the best authenticated, earliest, pre-historic abiding place of man in the British islands.

THE CITY LANDS COMMITTEE have recommended that

the executors of the late Mr. Alderman Besley should be allowed to remove the two obelisks at the northern end of Aldersgate-street, and erect in lieu thereof two drinking fountains, combining therewith obelisks to mark the boundary of the City's jurisdiction.

EXHIBITIONS.

THE TURNERS' COMPANY, as we stated last month, held their annual exhibition at the Mansion House, under the auspices of the Lord Mayor and a very considerable number of persons who take a practical interest in the various subjects. In the department of brass and steel for horological purposes, the specimens of pure turning show considerable mastery over working difficulties. The chief prize, silver medal and freedom of the company, was awarded to Mr. C. Crisp. Mr. R. Bridgeman displayed on some minute surfaces the uncommon result of finishing, with the cutter only, the fine pivots or axes of the balance-staff of the chronometer, so preserving unimpaired the perfect truth on which the time-keeping so much depends. C. J. Curzon, aged eighteen, gained a special prize for apprentices for a highly-finished specimen of complete lever escapement. A fine specimen of the marine chronometer escapement, by W. Heyes, received the well-merited award of the bronze medal. We regret to find there are no specimens in gold. The specimens of pottery, stone, and jet are numerous and interesting. In pottery, Class A, the first prize was given to E. Bryon, who gained the freedom of the company and 5*l.* for a large vase thrown on the wheel; the second prize, a bronze medal, was given to Henry Bryon, for a very large vase "thrown" in white clay. In Class B the silver medal went to E. Bryon for a large majolica vase. Various other money prizes and certificates were awarded. In stone and marble the specimens show very general excellence. The first prize, freedom of the City and a silver medal, was awarded for a beautiful tazza in serpentine to John Man-kervis, Helston, Cornwall. It is about a foot in diameter, made of Cornish serpentine from the Lizard, and splendidly polished. It rests on three griffins in serpentine of different colour, and the artist has shown his skill by the introduction into his design of a loose ring of polished stone, which rests in a horizontal position, and is capable of motion in its own plane about its own centre, passing freely through open spaces left between the limbs of the animal figures. The second prize, bronze medal and 2*l.* in money, to W. Coulman, Torquay, for a very beautiful work, two drinking cups in a light marble of a fine fawn colour. Each cup stands on an elegantly designed cylindrical pedestal in a dark-coloured marble, with ornamental mouldings. In ivory, the first prize, a bronze medal and 5*l.*, was gained by J. Hegley, 4, Queen's Place, Hoxton, for a pair of ivory vases on ebony bases; the second prize, a certificate of merit and 3*l.*, was awarded to G. Freeman, 2, Milton Street, Dorset Square, for a pair of large thermometers in the shape of obelisks. None of the work exhibited was considered sufficiently good to receive the silver medal and freedom of the company. Some unique specimens of turning and carving were exhibited, but not for competition, by Mr. T. B. Winsor, a member of the company. In jet there were no competitors.

THE LIVERPOOL ART CLUB has scored another success, by its admirably arranged loan collection of fans and the very skilfully arranged catalogue of the various specimens exhibited. There is, besides, an ably written introduction, which will always serve as a model on whose lines future compilers of catalogues can work with certainty of attaining their ends, if they only succeed half so well as the Liverpool Art Club has in this, its first fair display. At the present day the highest class fans are said to come from Paris; but there can be no doubt of the fact, that the Japanese are the most skilled workmen in the world in the manufacture of fans: we do not allude to the comparatively coarse productions made in thousands, specially for the American market, of which some few find their way to Europe, but to the superb works in precious metals, gems, painting, and embroidery, for use exclusively amongst the high class natives of Japan. Mr. G. Ashdown Audsley, to whom we are indebted for the catalogue and its introduction, concludes by drawing attention to the French fan-maker, who "a clever general, numbers in the ranks over which he commands, artists of all grades, carvers, gilders, jewellers, enamellers, and workers in metal, ivory, wood, mother of pearl, and tortoise-shell; he uses the finest vellums, kid-skins, papers, silks, laces, and embroideries he can procure for money; and he seeks, above all, to obtain the highest artistic skill to aid him in combining these materials with the work of the carver, the jeweller, and the metal worker, to produce a unit of perfection and completeness—a Parisian fan."

A MUSEUM OF COMMERCE and industry is being arranged in Paris for the exhibition of raw materials and their manufactured products. These are to be classified in such a way that the student, merchant, and mechanic alike, may observe the progress of a manufactured article from its first origin to its completion for the ordinary purposes of life. Every sample will bear upon it in plain letters and figures the name of the place whence it is derived, its price, and the manufacture for which it is intended. There are charts to illustrate the routes of commerce, the markets for the products and the climates suitable for their production, a commercial library, a lecture hall for periodical instruction in the geography of commerce and industry. In time a Geographical Society may be established in England that will serve a similar purpose.

THE EXHIBITION OF OBJECTS OF INDUSTRIAL ART held recently at Ghent, and only closed at the end of the month, was attended with marked success; the magnificent display of all kinds of manufactured goods, ancient and modern, was well attended throughout. Some inscriptions and ornaments in relief were shown by F. de Smet, Laeken. No indication is given of the method by which the letters are produced, but the ground is sunk about 1-32 of an inch, so that the presumption is a process like the sand-blast, or eating-in by acid, is employed. Some double doors, both for a *porte-cochère* and also for a saloon, are shown by Brunneau Frères, Ghent, and some balustrades turned in oak by J. B. Dogny, Brussels. Many examples of wrought-ironwork, executed entirely by hand, were exhibited, amongst them a balcony in the style of the Flemish Renaissance, ornamented with leaves and flowers. The first prize in the competition was carried off by M. Wanters-Koeck, of Brussels, for an artistic grille, three metres square, with roses each of forty-four leaves, lilies, and ferns—a complicated piece of work executed with the hammer alone. There were several panels, painted to represent various woods and marbles, by P. A. Cluytens-Muls, the Institut des Beaux-Arts, Mechlin, and others. The first prize for the design and execution of stove

and chimney-piece combined, was awarded to M. Verhengen, of Ghent, and the second to M. de Lorge, of the same town. To make the satisfaction complete, the *Chambre Syndicale Provinciale des Arts Industriels* resolved on a set day to throw open free the University Hall, where the exhibition was held, to all comers who cared to avail themselves of the privilege. The crowd presenting themselves was unprecedentedly large, and the enjoyment of the orderly and well conducted visitors amply repaid the committee charged with the undertaking. Groups collected round the objects of art most worth attention throughout the day; the goldsmiths' work of very archaic times attracting as much attention as the ancient Flanders tapestry and lace, the old fashioned hammered iron-work and the antique furniture collected in the great hall. To add further interest to the fête, a youth from the school of music, whose talent was of the highest order, played selections of music on the prize instruments shown: two pieces played by this artist, *Sans Souci* by Asscher and *Mi démol* by Hummel, seemed to attract much attention from the connoisseurs.

WE NOTICE IN THE LIST of the members of the Amsterdam International Exhibition committees, that no English commissioner was appointed to serve on the jury, or to assist in awarding the prizes to the successful exhibitors, all the other Powers of Europe being represented except Russia and Turkey, who might excuse themselves fairly on the score of being otherwise engaged.

AT THE EXHIBITION OF SANITARY APPLIANCES at the recent Sanitary Congress held at Leamington, the Sanitary Engineering and Ventilation Company exhibited their ingenious ventilating inventions and adaptations of their filters by means of an extremely simple patented self-acting apparatus, by which cleansed or purified air only is admitted into a room, without occasioning the slightest draught, or permitting the entrance of dust and "blacks." After passing through the purifying arrangement, the air is caused to ascend in a fountain-like manner, and then pleasantly diffuses itself throughout the apartment. The extra air thus admitted naturally escapes by means of the chimney, and thus a constant circulation is maintained. For the purification of water, an entirely new and ingenious form of aerating filter has been devised. The peculiar feature of this filter is, that whatever amount of water is drawn off, an equal volume of air is caused to pass through the filtering medium, by the influence of a natural law, without any mechanical contrivance whatever.

CORRESPONDENCE.

Vienna, October 1877.

THE Imperial Royal Academy of Arts (*der bildenden Künste*) was opened last May with great ceremony by the Emperor of Austria in person. It is by the same architect, Theophilus von Hansen, who erected the somewhat more showy and grand, but less pleasing, *Neues Börsengebäude*. It is in the Renaissance style, carried out with predominating Greek forms of architecture. The principal façade, facing the north—and the Schiller Platz, in the centre of which stands a fine statue of the poet—produces

a most pleasing effect, displaying a union of classic grandeur and repose, with undisturbed richness of ornamentation. Between the windows of the first floor there are copies of the most celebrated antique statues in niches, having a gilded background. The interior arrangements are every way perfect for the accommodation of students as well as professors. Of the latter there are eighteen, each having an *atelier* for himself. Two of these professors are for instruction in architecture; two for sculpture; eight for historical painting (which, with division of labour amongst the professors, includes religious and profane subjects, *genre*, portrait painting, &c.); one for landscape painting; one for perspective and style; one for engraving in stones (cameos, etc.); one for anatomy; one for the history of art; and one for copperplate engraving. The Academy possesses a collection of pictures by old masters (740 altogether), bequeathed to it by Count Antony Lamberg, in 1820. In the year 1874-5 the students, or scholars, as they are here called, numbered 194. Of these 150 were natives of the crown-lands represented in the Reichsrath; 77 of them being Viennese; 24 came from Hungary; 16 from the German Empire; 1 from Italy; 1 from Russia; and 1 from France. In 1872-3 the scholars numbered 143; in 1873-4, 171, showing that students of art in Austria are somewhat on the increase. I will add that of the 194 students in 1874-5, 77 attended the general school for painting; 38 the different special schools for historical painting; and 5 only attended the school for landscape painting. Moreover, 40 devoted themselves to architecture, and 13 to sculpture.

The students pay a yearly fee of 20 florins only (at the present exchange about 1*l.* 16*s.*); but poor and capable students are often admitted free. The Academy, founded by the Emperor Leopold in 1692, is possessed of considerable property, bestowed by the state in 1777, then valued at 200,000 florins, now worth many times that sum. At present the state, through the Cultus-Minister, only contributes money under extraordinary circumstances. Should the above statistical statement be held to show that the Austrian youth of the present day must take a considerable interest in the fine arts, and that the cultivation of native talent is well provided for, still, I fear the admiration of English upholders of the rights of women may be somewhat damped when I add that no female students are received in the Academy. Young ladies who aspire to become artists, can only obtain their necessary instruction when admitted by professors as private pupils to their ateliers. Possibly the want of the advantages of academical training may have something to do with the paucity of female artists of distinction in Vienna.

THE Conference of Librarians, as might have been expected, has resulted in nothing. One would have expected that a group of intelligent men, meeting for some reason or another, whose avocations were identical, would, on coming together, have considered their own condition in the first instance as the question of most importance to them as a body, that, combining for the common benefit, they might have co-operated for their mutual advantage and the protection of their individual interests on some solid basis. Here were assembled a number of educated men, each in the service of some corporate body, and under the direct control of a library committee, composed for the most part of men who know little or nothing of books or their contents. We may be sure that every man present at the conference, with hardly an exception, had a grievance which was worth ventilating; and to our mind the first subject for consideration was the obvious necessity of founding a librarian's benevolent fund, out of which some additional comforts might be secured

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PREFACE TO VOLUME II.



It will not require more than a cursory glance at our Illustrations to satisfy the true lover of Art respecting the value of our labours in the cause of Technical Education. It will be seen that the objects we have selected for illustration are worthy of imitation, since they are founded upon the choicest examples procurable.

We have not limited our selection of Decorative Art Objects to the field of modern manufactures, or improved methods of production, but have drawn from every store-house of Art, where the finest specimens of former periods of effective industry have been preserved, being encouraged in our undertaking by the support we have received from fellow-workers everywhere.

We do not hold with those of the present day, who—we think, ignorantly—prize decorative objects simply because of their antiquity. It has been, we think, too much the habit of Dealers to search in lumber-rooms for anything bearing the impress of age, and by means of a certain talent they possess, to force such things upon the attention of the inexperienced, since it must be admitted on all hands that if a thing is in itself inherently ugly, it is altogether undeserving of notice, on the score of its being antique.

This love of collecting incongruous and antiquated Art is no new thing; for a short period in England in the 18th century, the same craze for the possession of old objects of Art workmanship was rampant, as the satirical writers of the time amply prove, and Hogarth was prone to ridicule with so much zest on more than one occasion.

The success of the enterprising caterers of the "Wardour Street" type, perhaps, has at no previous epoch been so great as of late years; nowadays the dealers in *bric-à-brac* have been eclipsed by the second-hand furniture shops, who rejecting the vulgar title, have taken the more seductive names of Art Galleries and Museums of Decorative Art, where lumber, with the aid of lacquer and French polish, is made sufficiently resplendent to entice the self-constituted æsthetic buyer.

Old Japanese Art has in itself such correct elements of design, that its recent acceptance amongst ourselves has positively tended to elevate the natural good taste of our most experienced decorators. But there are already evidences of the corrupting influences of spurious forms of European Art, now busily at work upon the productions of that ingenious people, which are as much to be deplored as the same unsuitable combinations that unfortunately infect Indian Art at the present day, tending to its degradation and ultimate destruction.

Modern Literature, the accessories introduced into pictures, the details of stage decoration in modern plays, all go to illustrate the growing love for artistic arrangement in the homes of our people; but a large portion of the literature to which we refer is to be regarded with distrust, because the writers are manifestly wanting in special technical training, only to be obtained by long years of observation, combined with an accurate knowledge of materials and construction, which they do not, as a rule, possess.

There are passages in the writings of these would-be imparters of knowledge relating to the management of our household arrangements, which will, in the minds of impartial judges, bear us out in this respect, as, for instance, where it is suggested that, by means of some cheap expedient, it may be possible to make our homes look less formal than if we confine ourselves to the purchase

of plain and sound articles for every-day use. But contrivances which are intended to produce effects of an artistic character in our rooms, unless they are efficiently carried out, are only too apt to depress the owner of the makeshift, whilst they afford no gratification to his friends.

Other would-be guides greatly err in forcing certain rules of what is considered "good taste for the million" upon readers who seek information on the subject of house furnishing and decoration. With most of these guides we have little sympathy. Each professor urges the adoption of some *style* which accords but little with the comfort or convenience of the vast majority of the public, and the effect of the writings of such upholders of narrow views, if carried out, would in time destroy all feelings of Art which surely exist amongst us. In some continental streets the Government insists upon a perfect uniformity of colour for street doors and surface decorations; in our Coal Districts every respectable father of a family aspires to have his house furniture to correspond exactly in quality and form with that of his neighbour. This dull uniformity, if strained to the utmost, would have the effect of undermining individual taste, and obliterating our inherent love for Art.

We have avoided, therefore, advocating any particular style or period of decorative Art for the general acceptance, being convinced that the wider the field for selection, and the more agreeable diversity of opinion in the matter of what is in "good taste," is the true way to secure the highest cultivation of the arts amongst an intelligent people, who have so large a share in disseminating the truth throughout the world.

By the cultivation of fine forms, by the continual contemplation of the best types of ancient Art, more particularly the art of the sculptor, as practised when Greece and Rome were flourishing states, by the study of the ornaments of the Renaissance period in Europe, knowledge in the selection of artistic objects for every-day use amongst us will become more general; and in the surface decoration of materials for personal adornment, as well as for the ornamentation of our houses, an acquaintance with ancient Oriental textile articles used formerly for pageants and every-day wear, will enable us to judge more readily between what is suitable and what is intrinsically bad.

We have advocated the increase of Museums of Decorative Art, since the display of such things as are usually contained in the various classes into which such museums are divided, is in itself the most instructive means of education for the operative and manufacturer alike, and we have urged the introduction into such museums of works of high Art and Casts of classical sculpture.

In this volume will be found a continuation of the papers on Continental technical teaching, as well as the latest information we have been able to collect on the subject of Technical Education in our Colonies, which education, although of recent growth, has tended enormously to the improvement of our Colonial Empire.

We have pointed to the growth of trades and manufactures in distant lands which were at one time, and that not distant, considered hopelessly beyond their reach. Paris illustrates, amongst the wonders collected at the Champ de Mars, nothing more wonderful than the rapid growth of foreign commercial enterprise.

Like most travellers in remote lands, Mrs. Brassey, in her recently published voyage of the "Sunbeam," has been shocked at the derogation of English manufactures. Seeing one of the firemen on board fringing a piece of muslin, she asked him if it was English. "No, Missy; no English—Switzerland. English no good; all gum and sticky stuff; make fingers dirty; all wash out; leave nothing." She heard in the South Sea, in the Sandwich Islands, and in the Malay Peninsula, the same contemptuous condemnation of Manchester cottons. In Hong Kong all the English compasses in the shops were valueless. The American compasses were in good order, and not at all affected by the climate. In all sober sadness, and speaking from the experience of extensive travel ourselves, we echo her complaint, and also her solemn warning that "it will be a bad day when the confidence in English honesty as a nation, and, consequently, her well-earned supremacy in commerce, have passed away."



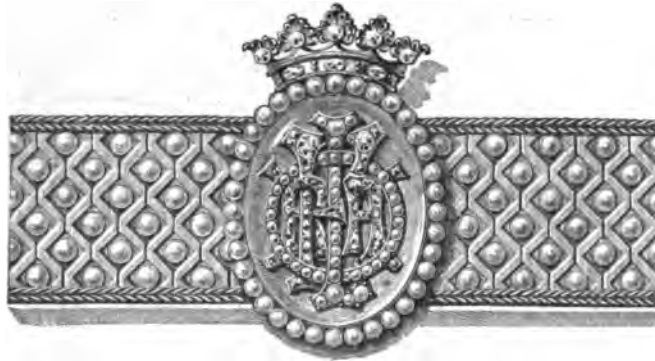
TABLE OF CONTENTS.

	PAGE		PAGE
Industrial Art in Australia	1, 46	Fresco Painting and Modern Mosaics	74
Professor Huxley on Technical Education	2	Amateurs' Fine Art Depository	81
Drawing Materials--Paper	6, 76	Indian Art	82, 109
National Gallery for Plaster Casts from the Antique	8	The Moorish Arch	93
The Laocoon	10	French Government Aid to the Fine Arts	101
Wall Paper, Aumonier's Flock	16, 53	Art, Learning and Literature in Victoria, } 106, 136, 166	
British Weaving Schools	18	Australia	
Mr. Cross on Art Education	21	Valonea	110
Iridescent Glass	22	Art and Artists	123
Japanese Art in London	24	Art Work	129
The Japanese Navy	33	Haviland's Ceramics	129
Winter Rambles among the Moors	36	Germany to-day	138
Danish Terra Cotta	40	Museum of Plaster Casts	142
Granulated Gold Glass	44	Principal Exhibitors of Industrial Art Manufactures	
Photography by means of Artificial Light	49	at the Paris Exhibition	151
Ancient Cement	50	Nottingham Fine Arts Museum	153
Economy of Fuel	51	Industrial Artists of Scotland	155
Notes on the Paris Exhibition of 1878	54, 78, 132, 160	Dewsbury Technical Schools	164
The American Organ	54	Reviews	25, 56, 84, 117, 144, 169
Art Education	63	New Inventions	28, 58, 119, 145
Ancient Textile Art	65	Notes	29, 59, 88, 120, 146, 173
Technical Education on the Continent	69, 112	Exhibitions	172
Industrial Art in New South Wales	73		



LIST OF ILLUSTRATIONS.

	PAGE		PAGE
Portrait in Tapestry of Her Majesty the Queen. <i>Frontispiece</i>		Album Cover	79
Bracelet	1	Glazed Earthenware Plate	81
Black and Gold Frame	3	Founders' Cup	85
Majolica Urn	5	Metal Balustrade	87
Chair in Carved Ebony	7	Vases in Metal or Ceramics	89
Enamel Frame	9	Specimens of Metal and Earthenware	91
Corona Lucis	11	Casket of Ebony	95
Etruscan Vase.	13	Jardinière in Gilt Bronze	99
Design for a Ceiling.	15	Decorative Furniture	103
Carved Frame for Looking-glass	17	Designs in Glass	105
Stand for Yule Log	19	Interior of Persian Pavilion	107
Greek Vase	20	Indian Tea Service	109
Glass Vases	23	Ivory Cabinet	111
Japanese Fans.	24	Ebony Cabinet	113
Dining Room Chair.	27	Ivory Box	118
Child's Chair	28	Chair	119
Stained Glass Window	35	State Bed of Oak	121
Table Cover of Damascus Embroidery	37	Painting on China	124, 143
Arm Chair	39	Vases	125
Vase in Porcelain Glass	41	Chest of Ebony	127
Baptismal Ewer	43	Cut Glass Ware	129
Lectern	45	Casket of Embossed Leather Work	131
Faience Ware	47	Vases of Haviland Ware	133, 139, 141
Wall Press	49	Fire-place, Elizabethan	135
Economic Fire Grate	51	Carpet Pattern	146
Flock Paper-hanging	53	Vases	155
Metzler's Chamber Organ.	55	Tapestry Carpet	157
Jewelled Ornaments.	57	Vase in Glass and Bronze.	159
Glass Table Filter	58	Faience, blue and white	161
Shield of Hammered Metal	59	Vase	163
Inlaid Pattern for Floors	61	Russian Pottery	165
Wrought Iron Gates	65	Chamber of a House in Tunis	167
Carved Ebony Frame	67	Bracelets	170
Old Chinese Porcelain Jar	69	Japanese Embroidered Cloth	171
Chair	71	Head-pieces, Ornaments, &c.	25, 33, 40, 44, 63, 76, 78, 102, 117, 123, 132, 144, 145, 153, 158, 160, 169, 172, 173
Austrian Tapestry	73	Initial Letters	1, 6, 8, 76, 106, 123
Flanders Lace.	75		
Window Sash	77		



INDUSTRIAL ART.

"Adequate measures should be adopted for securing to all a schooling calculated to stimulate a healthy development of the intellectual faculties, so that we may expect on the one hand a more generous and far-seeing appreciation of the industrial value of art, on the other its adepts will soon show greater readiness and aptitude to turn to good account the artistic instruction placed within their reach."—T. TWining on Technical Training.

INDUSTRIAL ART IN AUSTRALIA.



ANGAROO Land seems to have been overlooked by the friends of Art Progress. It told so prosaic a tale to many, that Art and Poetry appeared as strange to Australia as rest and peace to Bulgaria. Who could think of art in a brand new colonial township, with rude wooden huts and gardenless wastes, with streets alternately a quagmire and a dust-heap? Who could fancy it in a wilderness of gaunt gum-trees, or widely gaping plains? Just as soon might one picture poetry in a Bush shepherd, lazily curling smoke from a black pipe, having just fried his chops and turned out a damper from the hot ashes.

The unromantic origin of our Australian settlements, the iron necessity that drove men there, the terrible fight with wild Nature to get foothold for bread, the greed for gold when gold could be had for the grubbing, were all naturally regarded as utterly antipodean to art-culture. When the *London Times* so often exhorts colonists to devote their whole soul to gold scratching, wool raising, and beef preserving, but never dreams of manufacturing, how can the average Englishman fancy art in Australia?

But it *is* there, though. And what is more, there is not a soil in the wide world more favourable to its growth. That is a bold statement for a colonial to make, though colonials are credited with self-assertiveness.

Art, Industrial Art, is indissolubly associated with a

sense and love of beauty, a sense and love of poetry. Can such good come out of that Nazareth, Australia?

Yes, it can, and does. It is true that we out there lack some of the chief elements of romance. We have not a solitary ruined castle. We cannot, for the life of us, get up a single story of a fair lady kept in a dungeon till she yield to her baronial captor's terms. No hot pincers, racks, and faggot fires ever sanctified a spot for religious pilgrims. No ivy-clad abbey tells of a dark age, with no free thought and no free conscience. We have no mailed warriors in effigy, no hermits' caves, no blood-stained walls, no battle-fields, no echoes of shrieking horrors of the past.

Then, where can the poetry possibly come from? We have it there in landscapes that would equally charm Claude and Salvator Rosa. We have it in forms of vegetable beauty, and the brilliancy of birds' plumage. We have it in transcendent skies of pearly cloud and azure blue by day, in evening, starry brightness or most silvery moonlight. We have it in the juvenility of Australian life. We are young in years and feeling, with buoyant laughter, merry song, and hearty work. Our poetry is more Homeric than Belgravian, more suggestive of action than sentiment.

Is it nothing to poetry and art that we are a well-to-do people, yet neither idle nor self-indulgent? Is it nothing that we are free in the best and holiest sense? We trample upon no man's rights, we interfere with no man's faith. We are not burdened with mediæval bondage, but have an elasticity unknown in the social fetterdom of Europe.

We went out to fight and conquer, and we gained the day and won the land. We turned the wilderness to a

garden, forced virgin hills to yield their treasures, and stretched lines of rail and wire where only savage life was known before. We did more than this to inspire poetry and foster art, we spread schools of learning everywhere. No British territory is our equal in liberal expenditure for the teacher. No other British land has the class-room open free of charge, and on equal terms to all creeds. In the vast empire we have no rival in generous, voluntary zeal for the highest and best of causes. Can such growth of knowledge, and such development of pious means, be without the growth of true poetry, the development of true art?

Look at our rising youth. Arnold of Rugby said many years ago, "The sons of the colonists will be inferior to their sires." Were he to visit Sydney, and compare the institutions of the day with those of the former half century, he would tell another tale. The writer, who knew the Kangaroo Land nearly forty years ago, when without civil and religious liberty, without railways and steamers, with few elements of progress, and sparse tokens of civilisation, can testify with gratitude and delight to a movement onward, in the soundest and noblest direction, unparalleled in the history of the world.

To say, then, that so progressive a people—as anxious for the proper use of wealth as for the means of gaining it, as eager for intellectual excellence as for substantial power—are without love for poetry and art, is to libel humanity.

If unable to woo the nightingale, we can sit by the rippling brook, beneath the fern tree shade, perfumed by wild flowers, and, rapt in sweet thought, listen to the bell-bird's mellow notes. If without monuments of tyranny and strife, we have the contemplation of happy freehold homes, in which the future of prattling ones shall have less care than had the days of their fathers. Bright skies and healthy airs, with stirring blood and thoughts, with sunny smiles and peaceful homes, are not bad elements for poetry and art.

But when with educational provocatives to sentiment and culture there is the golden material with which to gratify the tastes, no one could doubt the coming reign of art. There was a period of colonial history when men sighed for wealth, that they might leave the gum-trees for the oaks of Britain. Why should they bother about art there? They grew and sold, they built and sold, they bought and sold, that they might get away the sooner.

That is now all changed. *Home* has got to have an Australian ring about it. Only magnates of six figures now talk of Europe; and even they are only too glad to get off from fogs and frosts, to sunny, flowery shores again. Several things brought about the change. Some did not make money so quickly as they had hoped. Others liked the taste of acquisition so well that, like *Oliver Twist*, they asked for more. Seeing they must stay, men considered they might as well make homes more decent and enjoyable. With constitutional government given us, practical measures were passed for the good

of the colonies. Business places and private dwellings improved. The growth of families was the turning point to fortune. The children, idols everywhere, and particularly there, called for better homes, furniture and amusements. There was a general levelling up everywhere.

What did all this mean but *Industrial Art*?

Originally, we were content with English importations of even common chairs. We can now make out of colonial wood a colonial product which, for real taste of design and character of workmanship, would not disgrace the West End.

As to architecture, few English cities can excel Melbourne and Sydney in the style of public edifices; and only the charming villas around Paris can beat some of our suburban colonial homesteads. When private mansions cost over fifty thousand pounds, there must be a demand for the exercise of the highest skill in Industrial Art.

In the working of metals, Melbourne especially is advancing. Zinc, brass and iron works are prospering. We manufacture our own agricultural implements and steam-engines, besides constructing locomotives for railways. From delicate filigree work in silver and gold up to locomotives is a wide range, with a considerable leaning upon Industrial Art.

So far as printing, lithography, and engraving are concerned, we think we shall soon hold our own against any country. Even our ordinary illustrated periodicals excite the surprise of some who had supposed us barbarians. The catalogue of the Melbourne public library may, for the elegance of its designs, and the beauty of its printing, compare favourably with any thing of the kind from a European government. The newest machinery and the newest patterns from England and America find eager expectants in Australia, and amply vindicate the interest felt there in Industrial Art.

Another time the interesting tale may be told of practical efforts to found schools of design in the Bush, lectures to workers on science and art, of the magnificent Technological Museum in Melbourne, etc. The colonial democratic government exists for the people, and is administered by the people for their own good. We raise a large revenue, and expend it in the true development of the country and the welfare of its citizens.

PROFESSOR HUXLEY ON TECHNICAL EDUCATION.

PROFESSOR HUXLEY, speaking recently on the necessity of technical education, said there was a general conviction that bores are the enemies of the human race, and of that large genus, he added, the worst probably is that known as the educational bore.

He had this generalisation present in his mind when he first proposed to himself to take up the topic of technical education as his theme on that occasion. He reflected that to go no further back than the last ten years he had somehow or other, on different occasions, been occupied in addressing the public upon almost all kinds of education, and, indeed, the question of technical education

subject clear to them and to himself, remembering what Lord Chancellor Bacon had said so profoundly, that "truth comes more readily out of error than out of confusion."

This technical education that we were all talking about, meant, he took it, the training fitted for those who practise handicrafts. Turned from its fine Græco-Latin form into plain English, it is the teaching of handi-



PICTURE FRAME OF EBONIZED WOOD AND INLAID GILT ORNAMENTS.

was almost the only opening of the sort left him. When their committee did him the honour of inviting him to address them, he was very much occupied with the subject of technical education, and it appeared to him that there was hardly any topic upon which the general public, and still more the working man, ought to have correct notions. He would do his best to make the

crafts. It might occur to many of them to ask the question, what it was he knew on the subject, or had in his mind on this point, and if he did not imagine that he could give a satisfactory answer to such a very natural question, he should not be there. He must confess that he was himself a handicraftsman, and had been so at any time for the last thirty years. He used the

term handicraftsman in its direct and natural sense, not in the conventional sense, in which fine gentlemen, with all the delicacy of Agag about them, tell the people at election times that they too are working men. During the whole of his working life he had 'actually practised a form of mechanical industry, requiring, he thought he might venture to say, a very considerable amount of those qualities which are required to make a successful practitioner of any kind of mechanical industry. His special handicraft was anatomy, which needed as much skill of hand and accuracy of eye as any. If any watchmaker would come into his laboratory, and bring him a watch to take to pieces, while he undertook to dissect for the anatomist, say the nervous system of a beetle, he would undertake to perform his own task to the watchmaker's satisfaction before the watchmaker did his dissection to his.

He should now like to state what, if he could have his own way, would be the kind of education or training he should expect from any one who wished to learn his own handicraft. He should like, in the first place, the aspirant to have had a good elementary education; not that he should be able to pass in this, that, or the other of the various standards; for he was not sure that was the same thing. What he wanted was that, besides a knowledge of reading, writing, and arithmetic, he should have been so trained as to awaken his understanding, and give him a real interest in his adopted pursuit. Next, he would require some acquaintance with the elements of physical science, a rudimentary acquaintance, it might be, but good and sound, so far as it went, with the properties and character of common natural objects. He would regard it also as eminently desirable that he should have some knowledge of drawing, more or less. The faculty of drawing, in its high artistic sense, is possessed by very few. Like poetry, it was an art inborn, or not to be had at all; for it could not be acquired. But as everybody could write, and as writing was after all but a kind of drawing, so, in the ordinary sense, almost anybody could draw a little, and he did not ask for much. He should further wish his aspirant to know something of one or two languages besides his own, that he might know what neighbouring nations, and those with which we are most mixed up, are about, and have within his reach valuable sources of information inaccessible otherwise. But what he would seek above all, was that he should have retained the vigour and elasticity of his mind, should be able to look at things in new lights, and should not have had his youthful freshness and bloom washed out of him by the labour and intellectual debauchery often involved at the present day in incessant grinding for examinations. Every one must have seen that in these days men are too often called upon to use the callow brain before it is set, and by the time the strain of life called for the putting forth of their utmost energies, the spring of their intellect was gone. Somebody had said that early risers are conceited

all the morning and stupid all the afternoon. Be that as it might, he had found that those who were made to rise too early in the intellectual sense were too prone to be conceited all the morning and stupid all the evening of their days.

Now he did not know that, if he could order the education of young people for the purposes of his trade, he should ask for any further requirements than those he had specified. True, they might say this was nothing technical, that he was giving them the play of "Hamlet" with the part of the Prince of Denmark left out. Just so. But he could appeal to themselves. He supposed that if any handicraftsman among them were going to take an apprentice, he would like to have a sharp, honest lad, one who could read, write, cipher, and draw a little. The business itself would instruct the learner in the technicalities of his trade. He did not think the time was coming when those engaged in handicrafts were to have a knowledge of everything. If a master found these common acquirements in an apprentice, he would have what he wanted. For himself, he would rather his pupil was one who had no knowledge of anatomy beforehand, since it was much harder to unteach than to teach. He regarded technical education, not as the teaching of technicalities, but as the sort of training best fitted to enable the pupil to learn them for himself. So far as he could gather, any measure of technical education which tended to delay the period at which a boy entered on the real business of his trade, by an undue prolongation of the school life, was impracticable, both from the employers' and from the workmen's point of view. If a young man was to earn his bread by daily toil, he must be broken in early. In the next place, it must be remarked that the period from thirteen to fourteen years to adult age was the most dangerous of human existence, and to free the great bulk of our rising youth from the restraints of toil during those critical years of their existence, might be most disastrous in its results. No employer who wished to prosper in business, no father who had his son's welfare at heart, could wish for such a thing.

If, now, it were asked what means at present existed for carrying out these views, he must own they were more satisfactory than one could have hoped. There was, in the first place, the great system of elementary education which had been spread over the country, and which might practically be called universal. The time would come when its establishment would be looked at as one of the greatest triumphs, perhaps the very brightest, of the century. Even if judged by no higher test than that of British interests, of which there was so much talk just now, these will be best served by the putting down of the Bashi-Bazouks of ignorance and the Cossacks of sectarianism. He would ask them to contrast the methods of teaching at the present day with those in fashion forty years ago. All the bad points of the great public schools, with very little of the good ones, were then

imitated by the rest. The advance now on this state of things was so great as to inspire one of his own age with a sense of depression, and with envy of the advantages enjoyed by youth of the present generation. Thus they would judge that he did not by any means come forward to complain of the smallness of the progress made in these matters. Still there were some respects in which the present national system might be improved. Elementary science was, it was true, recognised in the schools, but only by drops and teaspoonfuls, as if it were some dangerous drug. And although his friends Sir John Lubbock and Dr. Lyon Playfair sought to obtain from the government a more generous treatment, yet their efforts had hitherto been in vain. He was glad to see that Mr. Forster had, he would not say repented, but

which was the abomination of all true sportsmen, which was called "shooting for the pot," and there were, perhaps, too many teachers who worked the examinations too much for the pot. On looking back, however, some few years, he was perfectly surprised at the progress made upon the whole, and they might almost be ready to congratulate themselves on seeing a state of things which seemed hardly to fall short of Utopian. The universities and public schools had alike done great things, and the advance in education was so satisfactory, from the highest stratum to the lowest, that he and his friends could not but feel grateful for it. So rapidly was the popularisation of science progressing, that he looked forward to the time when, by the process known as *destillatio per ascensum*, distillation upwards, there would be no Member of Parlia-



MAJOLICA URN. ITALIAN 16TH CENTURY WORK.

that he had now taken up higher ground on this question. For his own part, although they all knew he was held to be a fanatic on that subject—an opinion with which he would not quarrel any more than with any other that had laid hold on the public mind—he would only say that he had no wish that any other branch of knowledge should be trammelled in the interest of science. They must be glad to own that science and art classes do in a measure bring sound education to the doors of our workshops. Still they must regret that the science teaching given is rather scattered and unsystematic, and that it is not so practical and experimental as it should be, which, though involving trouble and expense, is yet very necessary. Possibly, too, the system tended to foster another evil. They all knew there was a practice,

ment who would not know as much of science as an average scholar in one of our elementary schools, and when university men would look at science as something more than a back-door through which an inferior scholar could pass to a degree.

Professor Huxley thought it was only in this general way that a government could wisely do much more for technical education in the stricter sense than our own is already doing. He entertained no expectation that by any national system of education the masses could be made men of science or art. Mr. Galton, he thought it was, calculated that not more than one man in five hundred or six hundred was a man of special talent, and but one in a million a genius. The lecturer would by all means have such men sought out and turned to the best

public account. If they could go into the market and buy a future Watt, or Davy, or Faraday, even at £100,000, the bargain would be dirt cheap. He should be heartily glad could any machinery be devised for making the best of such exceptional lads, and he could think of no higher realisation of his ideal of technical education. Some time ago, when he was a member of the London School Board, he said he should like to see a ladder by which a child could climb from the gutter to the highest position in the state. He thought there should be some system by which a boy of special aptitude should be encouraged to prolong the term of his studies. Something in the way of small exhibitions might open the way of such lads to science classes for further instruction, and young persons of special capacity might be apprenticed at moderate premiums, especially if they showed talent for teaching, and a decided taste for intellectual pursuits. Let them follow their bent, be brought to London, and placed in colleges, where they might be trained to teach. Such would not teach for the pot. For anything akin to genius that might be discernible, a free path to the universities should be opened up. He would not take thought of any amount of money which might be spent upon such students. But save in such ways, he did not see that a government could do much for the direct encouragement of technical education in the stricter sense. On the other hand, Professor Huxley expressed his entire approval of the Clothworkers' scheme for technical examinations.

The great thing, after all, was to fit the student for becoming what he must be besides being a machine, viz., a man, and they must remember that there was already enough tendency in handicrafts to make men mechanical. It was safe, neither for the man himself nor for the state, to take him from intellectual and higher things for the sake of making him into a finer sort of machine. By all means let there be all possible encouragement given to the highest technical skill, but not at the expense of sound preliminary acquirements.

He might be asked, If the government is not to take upon itself this charge, who is? He would answer by stating, as he did upon authority, that within the last few months the Livery Companies of the City of London had been awaking to the consciousness that they were the inheritors not only of the wealth, but of the responsibilities also of the great trade guilds of the Middle Ages. They had been seeking information how best they might utilise their ample resources in the technical education of handicraftsmen, and had taken the best available advice. Shortly an executive committee would consider the best means of attaining the desired end.



DRAWING MATERIALS—PAPER.



PAPER, not the least important of the numerous articles designated "Drawing Materials" in these columns, is so important in water colour drawing especially, that in the interest of art we offer a few words on the selection and use of drawing paper.

When it is remembered that the surface of a single sheet of paper is to be the foundation upon which the artist is to expend his talent and labour to build up a picture, it is, we think, of the first importance that not only should he be able to produce a pleasing, but a permanent picture, and this result, we think, depends much more upon the character of the paper than is generally supposed. Unlike the paper composing books, the "hung picture" is continually exposed to the action of light and to the variations of temperature, the two great sources of decay. In addition to this there is always the fear that traces of the chemicals used in the manufacture of the paper may not have been perfectly neutralised and still exist; if so, the colours will lose their brilliancy and the general tone be dimmed and destroyed.

The qualities we consider a good drawing paper should possess, we have summarised as: *a*, Strong; *b*, Level; *c*, Clean; *d*, Bright; *e*, Hard; and on each of these headings we propose to say a few words.

Strength is the outcome, not only of the natural strength of the material of which the original rag was made, but also of the care and skill used in its conversion from a textile to a felted fabric. A corner of the sheet should be torn and examined at the edge of the tear with a lens; if the fibres are long and well interlaced, the paper will be strong; if the fibres on the other hand are detached, loose, and hoven, the paper will be weak. It must, however, be borne in mind that paper is only a felted fabric, and that it cannot be treated with impunity as a canvas (a textile fabric). Undue stretching opens the pores, and scratching with a knife destroys the skin, and H H H H pencils furrow the grain. Artists must remember Isaac Walton's advice about live bait, to "use him as though you loved him," and if they will select their papers with observation, want of strength will not be a subject of complaint.

By a Level sheet of paper we mean that the fibres composing the fabric are evenly distributed over its entire area. This quality may be tested by holding the sheet up to the light; if the edges are darker in colour than the middle, then the edges are thicker than the middle; if the middle is darker in colour than the edges,

then the middle is thicker. The general tendency of drawing paper is to be thin in the middle of the sheet, the consequence of which is an irregular absorption, which is at times very perplexing to the artist.

Freedom from speckiness, knots, and all extraneous matter constitutes a clean paper, the importance of which,

flow of a wash of colour. India rubber, lightly used, after the paper is stretched, is the best thing to clear them off.

Brightness, in contradistinction to whiteness, is a quality we lay great stress upon.

A whiteness obtained by bleaching will not be a perma-



CHAIR IN EBONY, COVERED WITH VIOLET COLOURED CUT VELVET AND GOLD THREAD.

to an artist, cannot be over-estimated. The lens must be again brought into requisition to search for the minute hairs so common on the surface of drawing papers. They are filaments of the woollen felts between which the paper is pressed in its wet state, and they are so minute that they are not visible to the naked eye, the first intimation of their presence being a stoppage of the

ment colour, and apart from this the contrast is too strong. The cheaper kinds of drawing paper, such as "continuous" cartridge in rolls, are made from a material that fifty years ago would only have been thought fit for the dung-hill, but by excessive boiling and bleaching is made to appear superior in colour to the best hand-made papers.

(To be continued.)

NATIONAL GALLERY FOR PLASTER CASTS FROM THE ANTIQUE.



NOTWITHSTANDING the mortification of knowing that of all bores the advocate of educational progress is the most intolerable, we have likewise the consolation of being in the best of good company when our efforts are so ably aided by such authorities in all matters

of practical usefulness as Professor Huxley, Mr. W. C. Perry, and Mr. C. J. Newton, C.B., the accomplished official at the British Museum.

Quite recently, as we have already pointed out in our pages, Munich, following so soon in the same direction, but quite independently, the example of the authorities of the *École des Beaux-Arts* of Paris, has opened a gallery of considerable extent for the display of plaster casts of all the known statues of the antique Greek and Roman and Mediæval schools of sculpture. France placed at the disposal of the committee to whom was entrusted the completion of her own collection, every cast of any value possessed by her towns, and Frenchmen everywhere in France, who were owners of fine plaster casts, offered them willingly to Paris. These have been arranged in a suitable gallery accessible at all hours to the public; and now, Mr. Newton joins with us in our effort to establish somewhere in London a commodious gallery for plaster casts of the antique. The formation of such a gallery is a matter of easy accomplishment.

We repeat, there is no place at present in London where the classic statues of Greece and Rome are available to the art student. The Museum at South Kensington is not intended for that kind of art; therefore the few specimens in marble or plaster bequeathed to it, are either gifts of those who, being unacquainted with the proper scope of the department, sadly blundered in their well-meant benevolence. The British Museum, on the other hand, cannot admit casts of even well-known works, its halls being devoted solely to the display of the national collection of original Art of ancient times.

The Crystal Palace, it is true, had at one time the nucleus of a fine collection, mainly brought together by that far-seeing artist Sir Digby Wyatt, but many causes prevented the idea of a complete Art Gallery from being carried out as he had intended. Naturally, the able advocate who has now come forward to direct public attention to this existing defect in our national art teaching appliances, finding the institution he represents is

not capable of sufficient extension to receive the two thousand specimens of acknowledged value it is possible to collect, overlooks every other metropolitan department, takes his hearers to the universities of Oxford or Cambridge, dwells with complacent admiration on the ultimate advantage of a glyptothek in either of these equally remote seats of learning, where, in one or other, he would find a home for a chronologically arranged collection of casts of Assyrian, Egyptian, Greek, Roman, mediæval, and even modern English sculptures, such as would include Flaxman's labours, with copies of the latest achievements of Lord Ronald Gower. This collection would be very handy indeed for the university undergraduate who has time to cultivate the art of elegant idleness, but we cannot help doubting its possible beneficial influence on the national taste in things artistic. Every complete scholar, says the *Illustrated London News*, "who is well acquainted with the spirit and manner of the ancient classics, will be prepared to allow that the study of Greek sculpture is an essential part of mental culture and refinement, so far as concerns the æsthetic part of mental imaginative faculties and the ethical perception of beauty."

Amongst the stock in trade of the principal Italian plaster of paris workers in London, will be found the very finest moulds of antique sculptures, long in this country, but hardly if ever used. A good impression from each of these would, in a short time, afford all the materials for a nearly perfect display.

By all means then let us have a public gallery of classic art. Let us be satisfied with the finest casts procurable, manufactured under the direct supervision of some person experienced in the various qualities of plaster, good, bad, and indifferent. The whole series of figures, averaging some seven feet in height each, need not cost more than at the rate of seven pounds sterling for each cast made directly from moulds, taken in many instances by clever workmen from the ancient marbles.

A hall with the few offices required for the curator and his assistants would not be a heavy item in the Fine Art Expenditure of the country, if we estimate it by the gain it would bring to our manufactures. The matter being extremely easy of arrangement, there need be none of that costly *hocus pocus* through which every effort of this kind has to pass, which only too often takes the form of shameful jobbery and extortionate waste before it becomes an accomplished fact.

The honorarium of the curator of these works in plaster, need not be a heavy item of expense; a sculptor or art student of known capacity, or if possible, an educated English teacher might easily be found competent to superintend the works of the students, who should have free access to the gallery at all hours, with a staff of attendants to look after the collection of casts and the lighting of the place, which latter would certainly be the only heavy item of expense in the undertaking, since the evening hours, after work, or Sunday afternoons,

are the only available portions of time open to young people engaged in daily occupations, and these are most undoubtedly the people who will seek to derive direct advantage from the opening of such an institution. Of course the large manufacturing towns in England ought to provide themselves with Plaster Cast Art Galleries, as a means of elevating the artistic predilections of

and from the Receptacle of Stolen Property at the Louvre, the French learnt a lesson of accuracy in art which has lasted them to this day." We may question their taste; we may censure their mannerism, and cavil at their morality, but the praise of being the best draughtsmen in Europe cannot be denied them. Moreover, even while France revelled in the enjoyment of her ill-gotten



AN ENAMEL FRAME CONTAINING A PICTURE OF DIANA OF POITIERS.

artizans, after the capital has set the example, since it cannot have escaped the notice of the observant, that even the occasional contemplation of pure outline must in time rout out all the false notions of bad art derived from the frequent repetition of the meretricious patterns now in use. "Out of evil," says a recent writer on the forced surrender by the French of Napoleon's spoils of the Vatican, "out of evil good undeniably came,

artistic riches, there had been seldom absent from the popular mind a vague but deep-seated suspicion that this halcyon time would not last for ever, and that, sooner or later, the day of restitution must come. Such a foreknowledge hastened the establishment of drawing schools throughout the Empire, all amply provided with casts from the antiques in the Louvre. "La ronde bosse" became, as it still is, the basis of French artistic training,

and the Louvre furnished an inexhaustible supply of matrices for the impressions in plaster, which were scattered through France.

Who that has seen a good statue of the Laocoon, the Apollo Belvedere, the Venus of Melos, or the Medicean Venus, the Diana, the Hercules, the Germanicus, or the Antinous, has not turned away with feelings little short of disgust and dismay on seeing any one of the thousands of modern statues in our streets or churches dedicated to the memory of our illustrious dead?

Writing on the subject from Rome, Mr. C. H. Wilson says: "In the year 1838, I advocated the formation of a gallery of casts from the antique, in a paper read at Edinburgh before the Royal Society of Arts, for which I was awarded the silver medal. I proposed that not only schools of art but also universities and seats of learning should be provided with casts illustrative of the study of the pupils or undergraduates. I pointed out that these important objects could be best attained, in a practical and economical manner, by the purchase of moulds made at home or abroad; that the expense of such moulds would not greatly exceed that of the purchase of casts, while the cost of packing and transport would be nearly the same. That, instead of depending upon the imperfect selections and worn-out moulds common in trade, fresh moulds of the best quality might be procured from judiciously-selected originals, properly illustrative of the history of art and of the writings of classic authors. Allow me again, after a lapse of nearly forty years, to renew my proposals. They were not altogether unfruitful when made; they were brought under the notice of Government, which laid them before the Council of the Government Schools of Design. I have been told that Sir Francis Chantrey suggested that a beginning should be made in Great Britain by forming moulds in our mediæval churches, and Mr. James Thomson, of Clitheroe, ordered two fine moulds to be made in Rome at his own cost. Parliament voted 10,000*l.* for the purchase of casts and models, but my scheme for forming a collection of fresh moulds, which I am still convinced would have been the most useful and economical, was not carried out. I continued to purchase pretty extensively, but only casts, among which was the fine collection of ancient busts formed by Signor Albacini, of Rome, and now in Edinburgh. Had we procured moulds instead of casts, every university in the kingdom might, ere this, have been provided at a small cost, with the ideal or portrait busts of the poets, philosophers, and historical writers and characters of antiquity."

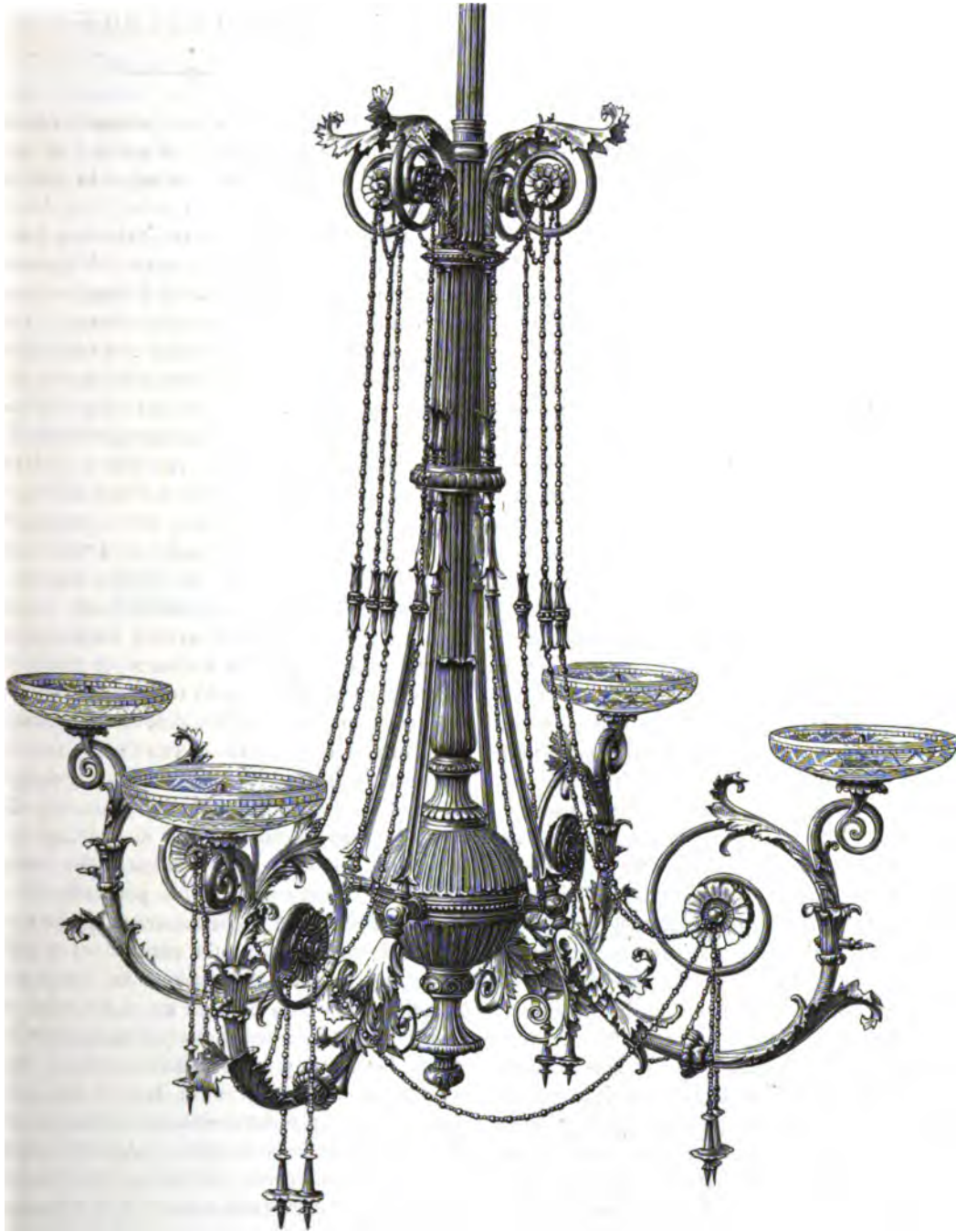
Let us then press for this important addition to our national system of training the young, that London may not be behind such places as Berlin and Munich, and Bonn and Dresden, and Paris, lest, whilst our universities, taking the hint thrown out by Mr. Newton, shall set about to provide an antique art gallery, the metropolis may still be left without a hall for the display of Plaster Casts from the Antique.

THE LAOCOON.

"SINCE we have possessed Lessing's criticism on the Laocoon group, the axiom that 'the poet ought not to paint' has passed into the A B C of poetic art."

So spoke Frederic Voscher; but when Lessing commenced his literary career, exactly the opposite opinion to this was universal throughout Europe, and maintained its ground in practice as well as in theory. There was a complete intermingling of the two domains of plastic and poetic art. This was more especially the case in England, from whence this kind of word painting had been introduced into Germany, principally by means of Thomson's "Seasons," and had found imitators in Brokes, Hatter, Klopstock, and in Lessing's own friend Kleist, the author of a poem entitled "Spring." Even Lessing himself in his youth had looked upon Thomson as the greatest of all pictorial poets. By the Swiss æsthetic teachers pictorial poetry had been elevated into a system, and even Winckelmann himself, as their supporter, in his well-known essay "Upon the Imitation of Greek Works in Painting and Statuary," had represented allegory as the chief aim of painting. He laid down this axiom, "that the limits of pictorial art are as boundless as those of poetry, and that the painter may with equal propriety follow the poet, as the latter the musical composer. In France the famous antiquary and dilettante, Count Caylus, had gone a step farther. He had represented the æsthetic worth of poets as being exactly in proportion to their power of pictorial description, or, as Lessing expresses it, "he had made the usefulness for the painter the touchstone for the poet, and settled the rank of the latter according to the number of the paintings which he can offer to the artist." Lessing, whose own idiosyncrasies led him clearly to distinguish the boundaries between kindred yet separate intellectual provinces, had already striven in his essay, "Pope a Metaphysician," to draw a line between the different kinds of poetry, as also the limits between poetry and philosophy. These limits he had thoroughly searched out and clearly defined in his treatises on the ancient fables, and he now felt himself bound to make similar restrictions in the regions of poetic and pictorial art. The confusion of ideas, or rather the complete absence of them, in the regions of the æsthetic thought of that time, is sufficiently known through Goethe's own confession of his youthful experience. Every aspiring mind longed for a guiding star in the chaotic darkness of vague notions and fluctuating taste, and none more so than Lessing, who, as a critical thinker, felt himself impelled to search out the fundamental laws with regard to art and her productions.

As a pamphleteer in the Voss'schen Journal of 1754, he had already joyfully welcomed Hogarth's "Anatomy of



CORONA LUCIS, DESIGNED BY H. CLAU, OF VIENNA, FOR THE FIRM OF D. HOLLENBACH AND SON.

Beauty," because the idea that all corporeal beauty lay in the appropriate and manifold undulations of the curved line appeared to give a certain limit, even if it did not prove an abiding one, to the fluctuating taste. Here he had to do with firm and sure ideas of beauty, in opposition to the vague notions and fluctuating judgment of so-called taste in which the mass, as well as the learned, instead of basing their opinions upon any theory, satisfied themselves with the miserable saying, that "one neither could, nor ought to strive against the popular taste." It is interesting to see with what enthusiasm the youthful Lessing

welcomed a work, to which, as he expresses it, "the world will be indebted that the word 'beautiful,' which one is daily accustomed to apply to a thousand things, can in future be intellectually used, where formerly it was only felt." He goes on to add his firm conviction, that all arts and sciences that have anything to do with the beauty of form will reap advantage. The philosopher, the naturalist, the antiquarian, the orator, whether of the pulpit or the stage, the painter, the sculptor, each and all will profit by the new ideas. From this time Lessing's attention was studiously turned to the settlement of the

ideas respecting beauty and art, as well as to the drawing a clear line of demarcation between the peculiar kinds of art, with an especial reference to poetry. His correspondence with the elder Mendelssohn and Nicolai, in the year 1756-1757, gave rise to the essay on tragedy delivered at the opening of the new library founded by Nicolai. In this essay one traces the germ of the new thoughts which, ten years later, ripened into full maturity in the treatise on the Laocoon; and Lessing's remark, "that his friend Kleist estimated his own poem 'Spring' as the least satisfactory of all his works," proves that Lessing must have communicated his ideas respecting the reformation of the first principles of poetic art to his friend. These principles may be found clearly stated, so far as they relate to poetry and painting, in Lessing's treatise upon fables, where the reason is clearly laid down why the artist can paint no fable which really deserves the name. Lessing at this time studied deeply the works of Homer and Sophocles, in order to search out the unalterable laws of eternal beauty, the sources from which it is derived. And it is not going too far to say that his Laocoon was the result of his study of these two poets. It is rather in its poetical than in its plastic aspect that the treatise has special merit, for Lessing was neither formed by education, nor favoured by opportunity, to be a perfect critic of the latter. His personal observation was limited to a few pictures and engravings, and to the scanty number of casts that were at that time to be found in the Dresden Gallery. It is to be doubted whether, at the time he wrote his treatise, he had ever seen a complete plaster cast of the size of life of the celebrated sculpture which gave its name to his work. The Leipzig Academy, at that time managed by Oeser, only possessed a plaster cast of the head of the Laocoon. It was principally the feeling of such a want that, after having finished his Laocoon treatise in the quiet retirement of his residence in Breslau, urged him at last to a journey to Italy. It is with regard to poetry that Lessing's work is most valuable. It was necessary to oppose a counter-balance to the glowing inspiration of Winckelmann and his friends for plastic art, so that poetry, which had often suffered from a too partial comparison with sculpture and painting, might thus be established in her rights. Guhrauer shows with justice that Lessing's entire work was based upon this idea. Its object was directed more particularly to poetry, with reference to fine and all other arts, upon principles in which Lessing, like his master Aristotle, placed the drama at the summit. The whole work was to be divided into three portions, but Lessing's fate, which brought about such strange alterations in his projected life at Berlin, caused difficulties in the carrying out of this intellectual labour, so that the first division remains a *torso*.

The fragmentary observations and notes that were found among Lessing's papers at his death, give but unsatisfactory suggestions of what the completed work

would have been. But even in this unfinished state the work proved a real emancipation for the æsthetic culture and literature of Germany.

With the same decision with which the plastic artist makes use of the most auspicious moment, so did Lessing gladly seize that moment from his contemporaries which he himself, as a connoisseur of art and of beauty, most highly appreciated, using it in order to connect with it his discussions upon the laws of art. And from Winckelmann's sayings he seized exactly the one that was best suited to develop his own ideas. Winckelmann had compared the Laocoon with the poetic description in Virgil, and asserted that the former was superior to the latter. While Lessing adopted this comparison as the starting point for his researches, he himself took a middle station, from which, as from the centre of the æsthetic circle, he could see in all directions. This middle point was at the junction of the two regions of poetic and pictorial art—a point where the works of the poet and painter are so apt to encroach the one upon the other, and which will be looked upon as a fault according as the critic has a leaning to the one or the other art. It appeared to Lessing a task which would repay itself, if, after so much had been written respecting the resemblance and concord between the sister arts of poetry and painting, he for once should turn to the obverse side of the medal, and seek out the differences between the two, and discover whether out of this dissimilarity laws might not be deduced which were peculiar to each, and thus cause one art to pursue an entirely contrary direction to the other. From this probing comparison resulted the fundamental laws of poetry, through the answer to the question: "How only is the poet allowed to paint?" The answer is: Not single features with the exactitude as if the listener stood with the outward eyes before a real image, but by a few touches to make it appear so present that the sketch may be filled up, and carried on by the imagination. In a word, the province of poetry is threefold: First, to present individualities at the moment when their destiny has raised them to the highest point. Secondly, to depict the inner world of thought; and lastly, to describe continuous action! And this threefold task leads us to the law of poetic art—that bodies must be represented by means of action. The origin and progress of the Laocoon treatise was as follows:—Winckelmann had blamed Virgil because, in his description of the Laocoon, he had represented the priest as crying out, and praised the sculptor because he had softened down the shriek of anguish into a sigh. Lessing shows that both poet and painter had each, according to his own peculiar capability, acted aright, and that the sculptor had not thus illustrated his subject with the intention of giving the idea of a loftier, more noble resignation, as Winckelmann supposed, but simply because of that law which, amongst the ancients, was the most important of all, viz., the law of beauty. This law imperatively obliged the artist, when his subject contained distorted

or repulsive accessories, so to soften down the latter, that the preponderance of the ideas communicated to the observer should yet be on the side of beauty. And this the sculptor of the Laocoon had done; for as he laboured to express the highest beauty while the surroundings were those of bodily pain, he was necessitated so to soften down the latter in his representation that the expression of beauty still remained. From the comparison of Virgil's description with the master-work of the sculptor, Lessing gained another law for plastic art. And this, which has reference to time, confines the artist or sculptor to the delineation of a single moment.

Therefore a moment must be chosen which is most fruitful in incidents, and it will be that in which the greatest scope is given to the imaginative power of the spectator, so that the more he sees, so much the more will be suggested to him. Therefore, the representation

on the contrary, to describe a continuous series of events in which the utterance of the most powerful expressions can have full scope, because they can be softened and ameliorated by what goes before or comes after, so that they lose any impression of pain which they may contain in themselves, and in such conjunction even work most effectually. He goes on to show, through the continued comparison of the Laocoon group with its poetic delineation, that the latter, because its organisations are of an intellectual nature, and have motion, in which those of the sculptor are lacking, must necessarily have a much wider scope. Virgil could represent his Laocoon clothed, for with the poet a garment conceals nothing, but the plastic artist, on the contrary, dared not leave even the priestly band on the head of his Laocoon, because it would have concealed the brow, from which expression in the highest degree emanated.



ETRUSCAN VASE.

of an effect in plastic or pictorial art ought never to be so sculptured or painted, that the imagination is left without anything to do. Here Lessing had a just idea, though it led him to an incorrect inference, viz., "that the action of the passing moment could not be expressed by plastic art, and also never was expressed by ancient plastic art." Numberless examples, even the Laocoon group itself, prove the fallacy of this statement; but Lessing confused a moment as taken generally with a moment of a peculiar nature, for it is not the moment in itself which is forbidden to the sculptor, but such momentary action, the sight of which, on account of its repulsiveness, would not longer be endurable.

Having thus settled these two axioms for pictorial and plastic art, Lessing passed on naturally to the domain of poetry. He shows that the aforesaid law of the sculptor and painter is no longer available for the poet, who has,

What is the result of this reasoning? Just this; that the most perfect picture of the poet is, in all its features, often unsuitable for the plastic artist. Yet, on the contrary, the work of the sculptor or painter is always available for the poet.

It is much more probable that the sculptor of the Laocoon obtained his idea from Virgil's description, than that Virgil gained his from the sculptor. Thus Lessing passed sentence not only upon the requisitions of the French connoisseurs, that the plastic artist should always depict his subject after the Homeric model, but sentence is also passed over that tendency which had come into fashion from England, to explain the old poets through the ancient statues, without making the least difference between the nature of the two arts, and without taking into consideration the immeasurably greater scope of poetry.

At the same time it is proved that the application of allegory by means of symbols is a make-shift of plastic art which the true poet does not use. This was an annihilating criticism for the numerous poets of that time who, in utter misapprehension of this, "make all their imaginative beings appear in masks, because they so little understand the fundamental law of poetic art, which is, to make such imaginative beings act, and by such acts to bring out their characteristic peculiarities." This criticism was a death-blow to the allegorical poets of the age, and Lessing approached nearer and nearer to his aim, viz., the demonstration of the superiority of poetry above all her sister arts.

The poetic art more perfectly than any other illustrates the law that every work of art should thoroughly explain itself. She therefore dares to take materials hitherto unknown to her, because she has the power by words to make them understood.

The poet, therefore, is much more inventive than the sculptor. He can, indeed, dare to spread the whole visible world out before the mental eyes of his readers. And when Caylus, with a contemptuous glance at Milton, ventured to utter the scornful remark, that "blindness was the only resemblance between him and Homer," Lessing nobly retorted, "Milton can indeed fill no gallery; but if the sphere of my intellectual vision must be circumscribed to the narrow limits of my bodily sight, I would set little value upon the loss of the latter, so that I might be freed from all restraints upon the former."

Lessing then proceeds to lay down the true principles of poetry with regard to the description of visible objects. In all such representations, time, which must necessarily be ignored, gives a decisive limit to painting. She cannot represent continuous actions as continuous, but she must content herself either with the treatment of actions near together, or with that of mere bodies which, through her treatment, are supposed to have an action. Such actions, especially those which give the idea of a series of movements, aiming at a certain goal, she can only significantly hint at through the representation of bodies. Poetry, on the contrary, that has for her heritage continuity of time, describes bodies, but significantly through movement.

Painting, therefore, circumscribed to the moment, must seize that most pregnant instant when present and future are most recognisable. So poetry, in her continuous imitation, can only use one faculty of the body, and must therefore choose one which awakens such a sensuous image of the body as she may require. From this result the rules with regard to the unity of picturesque accessories, and the paucity of the poetic descriptions of bodily objects. The theoretic result of such reflections may be seen and proved by the practice of the greatest poets; positively in Homer, and negatively in the works of more modern poets. Here Lessing draws attention to the difference between poetry and prose. The prose writer wishes simply to make himself clearly and

thoroughly understood; the poet, on the contrary, desires more than that; his aim is to make the ideas which he awakens in us so lively, that, with the quickness of thought, we seem to receive the real sensuous impression of the objects, and in this moment of illusion cease to be conscious of the means by which, through his words, he has brought this about. The poet cannot, therefore, through lingering copiousness, vie with the painter in a territory in which the latter, through sharpness, clearness, and the decided objectivity which is granted to pictorial art, is infinitely his superior. "For where poetry seeks to apply to herself the rules which belong to her sister art, I can indeed discover the labouring poet, but I am very far from seeing the real thing. A flower painted by Huysum is a thousand-fold better than any poetical attempt at description, for all such word description of objects destroys the illusion through which poetry principally works, and must destroy them, because the co-existence of the object comes into collision with the consecutiveness of discourse." The anatomy of the whole in its divisions will indeed be rendered easy, but the replacing these parts into one united whole will be difficult, nay, almost impossible for the fancy. Where, therefore, poetry (Homer for example) has described in detail, she has made use of that artistic grasp that changes the co-existence of an object into a consecutive series. Homer does not describe the finished shield of Achilles, but he narrates the process by which the divine maker fashioned it, and thus makes it appear before our eyes.

Thus the wish to describe was interpreted by Lessing as being the death-blow to all true poetry, and Horace's condemnation of all descriptive poetry was renewed. It is especially with regard to bodily beauty that the law thus obtained for the representation of visible objects operates most effectually; for this falls entirely to the share of pictorial art, while the poet is obliged altogether to renounce it. Every attempt of the poet, even though it were Ariosto himself, to vie with the painter in this, gives, to use Lessing's own powerful simile, "the impression as if one saw stones rolling up a hill, on whose summit a splendid building was to be erected; but in vain, for the stones fell down again on the other side."

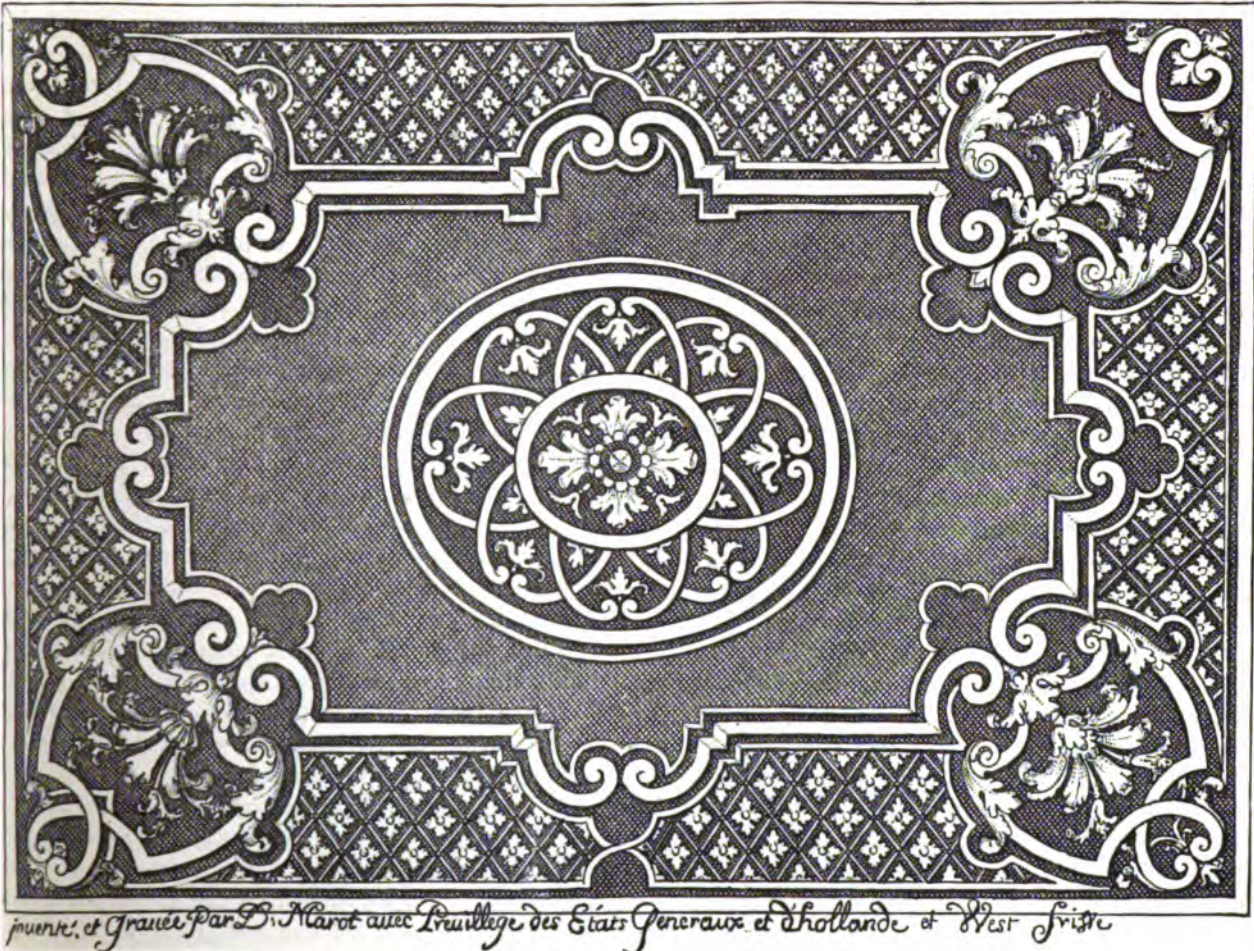
But, questions Lessing again, "does not poetry lose too much, if she is denied all right to the description of bodily beauty?"

"Who wishes to take it from her?" he replies. If one seeks to lead her from a certain path in which she had painfully wandered, without ever reaching her true goal, led on by the fancy that because she thought she could trace the footprints of a sister art, it was also available for herself, it by no means follows that one shuts her out from that other way where pictorial art in her turn dares not follow. And now Lessing shows that everything which poetry, in comparison with pictorial art, is obliged to resign, is far more than indemnified by what she has won, and by the immeasurable advantages which she possesses above all other arts.

And here a wonderful prospect over the whole range of poetry is opened out, which comprehends not merely the whole region of perfection, as was stated at the beginning of the Laocoon treatise, but extends to the boundless region of all life and existence. Thus poetry is able to describe visible beauty, though it must be in her own peculiar manner. And she is even in a position to do it better than pictorial art itself, for she is able to describe beauty through the effect which it works upon others, as Homer has done with his Helen, and poetry can, moreover, give an additional charm to beauty by adding to it

of a portrait to its original, but in that of a son to a father, alike yet different. One lineament of Jupiter, as described by Homer, gave Phidias material to create the prototype in his marvellous head, which remains an eternal and glorified ideal of plastic art.

But not only beauty, ugliness also, even the most horrible subjects, formed by a combination of the most terrible with the most revolting, may be taken into the sphere of poetic representation, for the ugly is, in fact, evil in its bodily manifestation, for poetry is just that art which unveils the inner moral world; and this, without



DESIGN FOR CEILING. BY D. MAROT, 16TH CENTURY.

the grace of motion. The enriching of the æsthetic territory through this idea, which Schiller afterwards so successfully carried out, is a merit which Lessing shares with our own philosopher, Hume. If the pictorial artist on his side will enrich himself through the creations of the poet, it can be in no other way than the artists of olden time have done with Homer. They nourished their own intellect by feeding upon his, they filled their imagination with the noblest traits drawn from this source. The fire of the poet's enthusiasm added fuel to theirs; they saw and felt as he, and so their works became copies of the Homeric; not in the relationship

the effect of contrast and the fermentation of the evil principle, would not be conceivable. The expression of ugliness, even the mere ugliness of form, is not allowed to the artist, or only granted within certain limits, and under fixed restraints. Thus a Thersites whom a Homer dared describe, because he needed his ugliness to make him ridiculous, is a subject such as no painter or sculptor would be willing to take, because he is not able to do what the poet did. That is, to use the ugliness, not as an aim in itself, but only as a means to the attainment of another end, and having done thus, to allow the means instantaneously to disappear.

WALL PAPER, AUMONIER'S FLOCK.

OF the many devices adopted by architects and decorative designers of late years for concealing the walls of our rooms and passages with artificial surfaces of a pleasing character, the new form of flock paper, invented and patented by Mr. F. Aumonier, member of the old and long established firm of Wollom and Co., is certainly by far the most interesting, from an industrial art point of view.

Paper stainers, as the paper makers came to be called, are of modern origin; when we see therefore, wall papers of quaint design styled "Early English" by the decorators, we must not by any means suppose that the English people of the 12th century (for to that period the term fairly belongs) had any knowledge of the use of wall paper; or that the curious combination of possible leaves and stems of plants, with the most conventionally treated flowers and fruit growing along with them, to which the term "Early English" is applied at the present day, had ever at any time a place in our national art developments.

The beginning of the present century, so fruitful of improvements in our domestic comforts, brought in the use of figured wall papers. At first it was the custom to decorate the narrow reception room of the lady of the house with wall paper, the pattern being stencilled on a tempera ground in the usual old fashioned way. This afforded some change from the everlasting wainscoted and painted chambers to be found in every old house of any pretensions furnished at that date. The pretty diaper patterns introduced into chamber interiors by the old MSS. illuminators, which look like wall papers, are really only refined methods of filling up vacant spaces, or are the painted cloths in use at that time. The revival of these painted cloths in our day, we shall have occasion to speak of in another paper. The large chambers of mansions which could boast of such carved or inlaid furniture as Chippendale produced, or Venice could supply, were painted in some delicate flat tint; the cornices were often works of art of rare beauty, these let down at intervals, garlands or festoons of foliage and flowers, or conventional chainwork of pips or bobs or pendent wreaths in minute plaster castings, and were intended to break the otherwise uninteresting surface of the panels. These decorations, reminding us of the favourite patterns on Wedgwood ware, were usually picked out in dead white or pale cream colour, or some shade a degree at least lighter in colour than the wall tint; a raised surbase ran round the room occupying the space now devoted to the dado, a word then unknown. A deep moulding, often of carved wood, divided the irregular outline of the plan of the room from the well-polished floor, the many-coloured marble

chimney-piece being in perfect keeping with the cornice, and of course with the sparingly-carved or inlaid furniture. In summer, a self-coloured carpet or drugget, and in winter a thick Persian, Turkish, or English woven carpet, with a wide border, *nearly* covered the floor; the ceiling, being divided into compartments by means of richly-decorated plaster, often served as frames for paintings of the school of Angelica Kauffmann. In such a room, finely-modelled furniture looked well, because it was in perfect keeping with its permanent surroundings, and furniture and apartment were in perfect accord; but to place, as we do nowadays, costly imitations of old furniture in modern square-cut, box-shaped rooms, having feebly-designed cornices in moulded plaster, loaded with colour, which robs it of all its sharpness of outline, to margin the great unbroken white surface of ceiling from which a central gaslight depends, the floor being covered with a hideous geometric carpet pattern of the true South Kensington type, the wide, unbroken surfaces of faintly-coloured French pattern wall paper, with one or two oleographs or other frightful abominations in the way of fine art decorations, each of the so-called pictures depending by two cords from nails driven into the cornice, or suspended from a brass rod, in such a chamber as this, to expect to find Chippendale, or good copies of Chippendale at home, is as preposterous as ridiculous to contemplate. To return, however, from this digression to the wall paper of the beginning of this century, it must be remembered that at the time we speak of, the Chancellor of the Exchequer, being perplexed with urgent demands for money to carry on costly wars, and seeking to refill his rapidly depleted money chests, was obliged to tax every article offered for sale that was capable of being construed into a luxury. It is to this cause we must attribute the evident gradual decline in the progress of taste between the peace after Waterloo and the Exhibition of 1851. France owed her loss of prestige in art to a similar cause.

Wall paper, in its turn, fell under the tax collector's exactions, and for many a day every short length of paper, as the paper was made at that time, was stamped in one corner by the excise man, whilst the opposite side bore in its florid but effective design the impress given to it by the artists of French Huguenot extraction, who, since their first setting foot in England, have preserved in their families, even to the present generation, whatever elements of genuine artistic genius the country can boast.

A collection of wall paper designs, manufactured in England during the last seventy years, chronologically arranged, and placed within the reach of students, would serve to dispel the illusion that art at the present day can compare favourably with the period when Wedgwood was busy or when Blake painted.

One of the most elegant forms of wall paper is undoubtedly that possessing the well-known velvet-like flock-covered surface, with satin or gilded background to set

off the florid raised work. The richness this costly material indubitably imparts to an interior cannot be surpassed even by the raised gilt and stamped leather-work, which obtained in the South of Europe formerly. Quite recently, however, one of our largest manufacturers of flock paper, Mr. A. Aumonier, has perfected a method of stamping paper with a denser and more compact thickness of flock, which stands sufficiently high

of their kind. We noticed in the samples sent us a fine foliated design, with large conventional flowers sparingly introduced, which for their purpose are simply perfect. These are produced either in well-contrasted delicate tints of ivory and white for ceilings, or elaborately decorated arabesques in suitable colours, and fine embossed gold, useful for filling the panels of doors, for walls, and in some cases for ceilings also. The decorator



CARVED LOOKING GLASS FRAME IN GOLD OR DARK VELVET BACKGROUND. BY F. HECKERT.

above the gilded or otherwise finely-decorated surface of the paper to which it is attached, to produce the most agreeable effects of light and shade, which, up to the present time, have been altogether beyond the reach of the surface decorator, at least in paper material.

The patterns of these elegant designs are sharp cut, decided, nicely balanced, and, in fact, seem to us perfect

will find various uses for which this fine textured raised ornamental wall paper will "come in" capitally. In the meantime we congratulate the trade generally on having within their reach these novel materials for surface elaboration, the want of which, but for the enterprise of the inventor, no doubt has retarded the progress of this branch of the domestic arts in more ways than can be easily estimated.

BRITISH WEAVING SCHOOLS.

FOUR years ago there was no Weaving School in existence in Great Britain. At that period arrangements were being made for the establishment of the Yorkshire College of Science in Leeds. The proposals were brought under the notice of Messrs. Hargreave and Nussey, the well-known firm of woollen manufacturers and merchants. Mr. G. H. Nussey, a member of the firm, had previously maintained, at his own expense, a class for instruction in weaving and the chemistry of dyeing in the Leeds School of Science and Art. A similar class had been organised in the Huddersfield Mechanics' Institute. Messrs. Hargreave and Nussey directed the attention of the promoters of the College of Science to the importance of making provision for technical instruction in textile industries, and offered to give a subscription of one thousand pounds to the college funds if a textile industries department formed part of the organisation of the college.

About this time Mr. Farnan, a member of the Court of the Clothworkers' Company of the City of London, and subsequently Master of the Company, was in Leeds, and discussed with Messrs. Hargreave and Nussey the proposals they had made. Impressed with the cogency of the reasons adduced in favour of the establishment of a weaving school, Mr. Farnan submitted the suggestions to the Court of the Clothworkers' Company, of which Mr. Wyld, the earnest advocate of technical education, is a member, with the view of obtaining its assistance in carrying out the scheme. This was at once cheerfully and readily granted, and it is only doing bare justice to that important guild to say that the hearty co-operation it has given to every practical proposal for advancing technical textile education has placed it in the foremost position among the City Companies, who are endeavouring to administer their revenues for the promotion of the well-being of those trades to which their original members belonged. Now in every important centre of the woollen and worsted industries efforts are being made to establish weaving schools, and there cannot be any doubt that the entire movement is due to the munificence of the Clothworkers' Company, without whose aid the parent institution in Leeds would not have been organised with the completeness and efficiency necessary to assure success. The governors of the Clothworkers' Company informed the council of the Yorkshire College of Science that they were prepared to grant the sum of £300 per annum for three years towards the sum required as salary for a professor of textile industries, and also to establish four scholarships of the annual value of £25, to be held by students in Yorkshire between the ages of sixteen and twenty-four years, also four scholarships of the annual value of £30, for open

competition to non-Yorkshire students. This proposal was afterwards modified by the substitution of an annual grant to the college of £120 in place of the four open scholarships. The company stipulated that the textile industries department should be managed by a local committee. The college council accepted the proposals, and a local committee was appointed, with Mr. Obadiah Nussey as chairman. The department was at once organised, but great difficulty was experienced in securing a competent teacher, and the classes did not get fairly to work until October, 1875. Mr. John Beaumont, an experienced manufacturer, was placed at the head of the department, and his class-rooms were at once filled by an attentive body of students, who evinced great diligence in the pursuit of their studies. The course of instruction for day-students was as follows:—

Practical Weaving, Plan Drawing, Drafting, Designing, and Colouring the following weaves of cloths: Plain and single-make cloths. Combination of single-make cloths. Double-make cloths backed with weft. Double-make plain cloths, backed with warp and weft. Reversible double plain cloths. Double plain cloths backed with warp. Designing original patterns on point-paper, and colouring them to indicate the woven fabric in figured double plain cloths. Figured Twill cloths. Triple-make figured cloths. Analysis of woven fabrics, which comprises the following branches: Plan of weave. Size of yarn, both warp and weft. Counts of sley or sett. Width in loom. Picks per inch in loom. Weight of yarn, both warp and weft. Theory of colouring. Primary colours. Formation of Secondary and Tertiary colours. The laws of harmonious colouring.

The class met for lectures on Mondays from 9.30 A.M. to 12 noon, and for instruction in designing and experiments on the looms on Mondays, Wednesdays, and Fridays, from 3 P.M. to 5 P.M. during the college session from October to June. Each student paid a fee of ten guineas. To meet local requirements, a class was formed on Wednesdays and Fridays from 9.30 A.M. to 12 noon, at which a modified course of instruction was carried out, the students paying a fee of five guineas each. For evening students who met on Wednesdays and Fridays during the session, a special course was instituted, but in this course experiments in the looms were not included, and a reduced fee of four guineas was paid by each student. The course of instruction for day students now extends over two years, the second year's course being intended for the use of students who desire to study any particular branch of textile manufacture in which they may be engaged.

The results gained by the Leeds Weaving School exceeded the sanguine expectations of its promoters. The widespread desire for technical textile education was shown in the crowded state of the class-rooms, and the work done by the students, which cannot here be detailed, was of a thoroughly practical character, and commanded the approval of manufacturers who were not previously in

favour of the school, regarding it either as a fanciful theory or as a continental institution unadapted for British soil.

The success of the Weaving School has led to steps being taken to provide a suitable building in which its operations can be carried on, for hitherto the classes have been conducted in hired apartments. With a generosity beyond expectation, the Clothworkers' Company offered ten thousand pounds for the erection of a school, and in the presence of Mr. Reynolds, Master of the Company, and a deputation from the Court of Assistants,

School until the promoters had watched the proceedings at the Leeds school. Subscriptions towards a general fund for the technical college had been received, but as the entire scheme only made slight headway, Mr. D. Sandeman, a Glasgow merchant who had taken great interest in the proposed weaving school, forcibly urged its immediate establishment. A sum of £3000 was voted from the general fund for the erection and furnishing of a building which was publicly inaugurated on the 8th of September, 1877. Here again the liberality of



STAND FOR YULE LOG. VENICE, 1577.

the foundation stone was laid by his Grace the Archbishop of York, on the 23rd of October, 1877.

The successful work carried on at the Leeds Weaving School has given an impetus to technical textile education throughout the kingdom, and the establishment of the Glasgow Weaving School may fairly be regarded as an outcome of the original movement in Leeds. It is true that the idea of making the theory and practice of weaving a department of the Glasgow Technical College was proposed some years ago at a meeting of manufacturers, but nothing was done for the organisation of the Weaving

the Clothworkers' Company has to be recorded. The company has endowed the school with £150 per annum for seven years, and this action has called forth subscriptions from the locality, which ensures the pecuniary stability of the school for at least the period over which the Clothworkers' grant extends.

Following in order of time the Leeds school, the Glasgow managers have been able to base their plans upon the experience gained in the former institution. The main feature in the buildings is the weaving-shed, having a lean-to roof of two bays. It measures eighty

feet in length by thirty-six feet in breadth, and affords accommodation for forty power looms, together with hand-loom, winding, warping, and other machinery. In addition to this shed are working and store-rooms, with a spacious lecture room on the first floor. A large quantity of the machinery placed in the school has been given by the several makers. It is almost unnecessary to say that the looms and other machinery presented to the school are of the best description, and have been constructed with the latest improvements. But the excellence of the building and the appliances placed therein are of no avail, unless the managers are able to secure an efficient instructor. Fortunately at Glasgow, as at Leeds, a gentleman suitable for the post has been inducted. Mr. Jabez Oldfield, who for many years held a highly responsible position in one of the most extensive spinning and weaving establishments in Glasgow, occupies the position of master of the school, and although it is not possible at present to speak with absolute certainty concerning the

have taken up heartily the foundation of a school as a matter of necessity for the maintenance of their staple trade, and being more or less connected with the management of the charities, are concerting measures for applying their available funds to technical textile education. One charity endowed by Mr. Armitage is worth at least £10,000, and it could not be applied to an object more in harmony with the design the donor had in view, taking into consideration the circumstances of the time then and now.

At Bradford the movement for a Weaving School is promoted by a joint committee of the Mechanics' Institute and the Chamber of Commerce. The Batley proposals are for a school on a small scale, and an instructor has been appointed. The Bristol scheme, although liberally supported by the Clothworkers' Company, does not make the progress noticeable in the north country projects.

So wide-spread is the munificence of the Clothworkers' Company, that it now becomes somewhat difficult to



GREEK VASE WITH DECORATIONS ON THE LIP AND THE INNER SURFACE OF THE THROAT.

results of his teaching, yet there is every reason to believe they will not be behind those gained in Leeds. One defect in the course of study is, however, apparent. Designing does not receive the amount of attention needful in a well-organised weaving school. Such a deficiency can be easily remedied, for the importance of the subject requires it should have a prominent place in the school curriculum.

In other towns, strenuous efforts are being made to promote by various means the establishment of weaving schools. It has already been mentioned that a class at the Mechanics' Institute, Huddersfield, has been for some time in existence. As the diverse forms of foundation peculiar to separate districts are of interest to the technical educator, it is well to notice the proposed plan for the development of the Huddersfield weaving class into a well-organised school. In Huddersfield are numerous charities, which could be easily adapted for the support of a weaving school in the centre of the heavy woollen district. The members of the Chamber of Commerce

know where its funds are not being applied in aid of any well-devised plan for giving instruction in weaving, and the schemes mentioned do more or less derive pecuniary assistance from the company. Speaking at Leeds at the laying of the foundation stone of the college, Mr. Reynolds said that it was the intention of the company to do at Huddersfield and Bradford, what had been done at Glasgow. He further intimated that as the contents of the purse increased more eventually would be done.

In the foregoing brief survey of British Weaving Schools, it has not been possible to do more than simply recount noteworthy facts, but sufficient has been said to show that at last the woollen and worsted trades are making haste to occupy ground hitherto neglected, and to do educational work necessary for the well-being of our manufacturers in a large and comprehensive spirit. And further, that an ancient guild has thrown off the lethargy that has for many years enveloped the City Companies, and has come forward with princely bounty to aid the promoters of Weaving Schools.

MR. CROSS ON ART EDUCATION.

THE Right Hon. R. A. Cross, M.P., Secretary of State for the Home Department, in a recent address, stated his opinion that: "The art and science teaching of to-day has done, and is doing, much to promote taste and to foster all that is good, and high, and noble amongst all classes of the community. I think," said the speaker, "everybody will admit that, until very recently, general art had—with a few brilliant exceptions—sunk very low in this country. Much was going on to corrupt the taste, and to do what was harmful and prejudicial. It has often been said that if you enter a man's house and observe the nature of his furniture, pictures, and other surroundings, you will have a pretty good idea of the character of the man himself. I believe it, and I am quite certain that if you had gone into certain houses some time ago you would have seen nothing which showed any true perception of art. Instead of that, you would have found a display of wealth, a vulgar display of things that had no art in theory, but which were very costly, which I dare say were very magnificent, but certainly nothing to elevate the taste of the occupants. Take the case of the furniture, the case of the hangings, and that which always distresses me so much, the upholstery of those houses—nothing could be more base, nothing more unsuited to raise the taste, or show the refinement of the owners, than the vulgar exhibition of very rich hangings and the inordinate upholstery which we used to find. I regret this not simply because of the owners of the houses themselves, but because of the degradation and the debasing influence which it must have had upon the workmen who manufactured those articles—the upholstery, the nobbs and bobs, which one used to see. By improving the taste of the workmen you are also improving the taste of the higher classes who employ them, and you are putting into their power the possession of that which is beautiful in itself, and which, being beautiful, must have a good effect upon those who have the privilege of seeing it. If you turn from what I have been speaking of to the question of higher art, you will find that some time ago there was great want of perception of the great doctrine which every workman and every owner of works of art ought to possess—namely, a high appreciation of truth. Truth in art is everything, and I cannot conceive anything more fatal than the want of it. No man can properly draw a picture of the human body without understanding its structure. It will not do merely to be content with drawing the clothes and the muslin, with a human face on the top of it. Whatever you draw must be true, and so it is with machinery. If a student does not understand the construction of the machine that he draws, it is fatal to his success. Unfortunately, in the present day, truth is being much ignored in the buildings which we see around us. Take the case of bricks and

mortar. Nothing can be more beautiful than buildings constructed of bricks, if the bricks are properly laid and joined, so as to support that which they are intended to support. If a man is rich enough to have a building of stone, by all means let him have it; but do not set your workmen to build a thing of brick, and then to cover it over with plaster and call it stone. That is to me utterly untrue and wrong, and I cannot imagine anything more demoralising to the workman who has to do it. If all the builders of new houses in London, instead of making those wretched pillars and covering them up with plaster, were really to show how beautifully bricks could be joined together, the aspect of the metropolis would be totally different to what it is—and so it may be said with regard to iron. Pillars that bear all the weight of a shop are covered so as to make them look like wood or stone, whereas you know that if they were really made of either they would not bear the weight that was imposed upon them. I cannot conceive, as I have said, anything more disheartening to the workman than this. It is making a thing untrue and absolutely false. I declare that if I were a student, and my work was treated in that manner, I should go home and cry. Painters again are set to paint deal, so as to represent oak. I myself have watched them with pain, as I have seen them paint the grain, and lay the strokes down so accurately that one might almost be able to tell how old the tree was that supplied the wood. Nothing can be more beautiful than oak, but if a man cannot afford oak, let him have some other wood, and, if he likes, he can have it painted white, with a little flower or a butterfly in the corner, to attract attention. I know a great building which is a conspicuous example of what is false. The pillars which support the galleries are of granite, magnificently worked; but the moment you go above them you will find that the pilasters are painted, and not true but false. In another case there is a magnificent canopy over a statue. The four pillars beneath may be very beautiful; but you know that if that was the real construction of the building, the thrust of the arches would throw the pillars to the ground at once. They could not bear the weight that is upon them. Well, but how is the canopy maintained? Simply by this means, that underneath all the beautiful paint which covers them are iron girders, and they carry the dead weight, and so withstand the thrust that is upon them. That is not true, but false. If you are going to build with iron, why, show the iron; tell the truth, and do not be ashamed of it. There is no reason why iron should not be made as beautiful as it is enduring. I have seen that which is false, also, in Gothic architecture. Instead of being true it is a lie. I feel very strongly in this matter, and I hope that our art teaching in the future will do something to dissipate this folly of the present day. The same thing is to be found in the dress of the ladies. Taking a homely illustration, you will find that people wear boots with a dozen buttons upon them, but not one ever intended for use; in fact, the boots could

not by any possibility be buttoned if the wearers wished it. The same want of truth may be said to prevail with regard to oil cloth and wall papers, when they are made to look like tiles and marble. One thing is of essential importance to remember, and that is, that which is beautiful is not in the possession of the rich only, but of the poor as well. I feel this principle underlies so entirely the whole matter of your study of art and science that I advise you at once to dismiss everything that is not true, not for the benefit of you as workmen, but for all the classes for whom you work."

Already the critics with their usual lack of logical acumen are busy tearing this outspoken opinion to tatters, but Mr. Cross need not fear the wild commotion he has raised amongst the swarm of drones. They have no stings to inflict wounds with, and their buzzing will be forgotten long before the facts enunciated by the minister have borne sound fruit. For instance, great exception is taken at his objection to the grainer of wood: "If the man cannot afford oak, let him have some other wood, and, if he likes, he can have it painted white, with a little flower or a butterfly in the corner, to attract attention." And one writer goes on to say, "Doubtless, the deal planking painted white with a butterfly or a flower in the corner might attract attention, but it would be false. The deception, to become true, should have a real butterfly or a real flower in the corner. What right have we to imitate insects and plants? In this single example it at once becomes manifest that the whole of Mr. Cross's theory of artistic truth is based on an erroneous foundation. Art, from beginning to end, is nothing more or less than imitation, but imitation inspired by veracity and refined by taste. Photography, save when its manifestations are distorted by aberrations in the focus, is a thing absolutely and literally true; but without the refining influences of artistic modifications the works of the photographer would be, as they frequently are, dismally ugly. Nature is not always beautiful; but nature is truth. It is the business of taste and skill to eliminate the prosaic and monotonous elements from a landscape, and to bring only its beautiful features together on canvas. There is not, and there probably never was, a woman in the world so thoroughly and entirely beautiful as the 'Venus of Medicis.' She is not true, because she is perfect; but it was the business of the sculptor to collect all the beauties of all the models he had ever seen, and to weld them together in one harmonious and incomparable whole. He would have made the statue of flesh if he could; but that was impossible, so he made it in marble. Does Mr. Cross object to copies of the 'Venus' in bronze, in ivory, in Parian, or even in plaster of Paris? They must be all untrue, for the original is in stone. And therein, we take it, lies the painter's, the grainer's, the modeller's, and the decorator's apology. The art workman does not imitate ugly things. He does not make oak look like deal, or gold like lead. He imitates beautiful things, the possession of which is not possible

to all, but the contemplation of which may be by skilful simulation universally enjoyed. The material in which he works, so long as the conditions of proper solidity are satisfied, is no great matter. Beauty and fitness are what he has to look to; and in beauty and fitness are comprised as much of artistic truth as we can hope to be endowed with even in this advanced stage of civilisation."

IRIDESCENT GLASS.

A FEW years ago, a continental firm of glass manufacturers succeeded in mastering the secret by which glass, during its process of manufacture, at times became as lustrous as a rainbow, or as many coloured as a soap-bubble, recalling Byron's lines:—

"Overhead a rainbow, bursting through
The scattering clouds, shone, spanning the dark sea,
Resting its bright base on the quivering blue,
And all within its arch appear'd to be
Clearer than that without, and its wide hue
Wax'd broad and waving like a banner free,
Then changed like a bow that's bent.

It changed; a heavenly chameleon,
The airy child of vapour and the sun,
Brought forth in purple, cradled in vermilion,
Baptized in molten gold and swathed in dun,
Glittering like crescents o'er a Turk's pavilion,
And blending every colour into one."

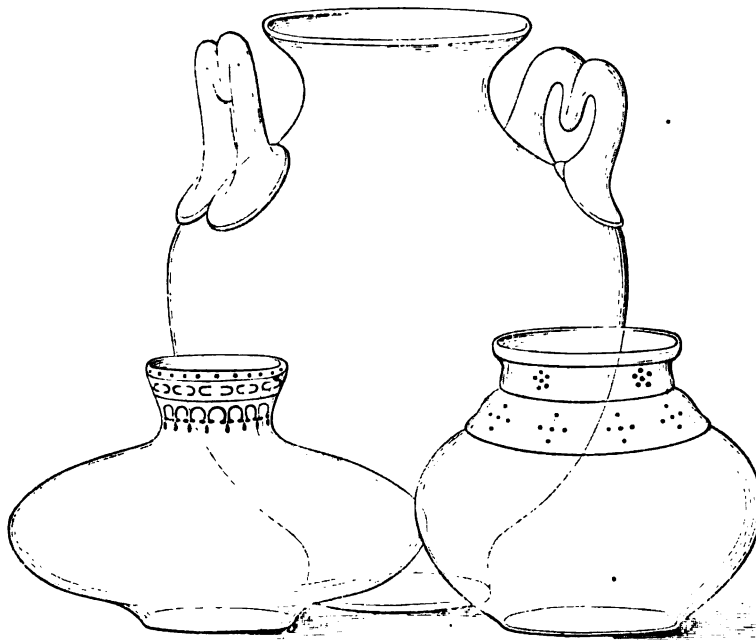
From the earliest times, glass had been observed to assume occasionally this prismatic appearance, but the cause had never been previously traced with anything like definite precision until the chemist of the firm we have indicated worked out the true principles on which the brilliant effects are based. There were, however, greater difficulties in the way of the introduction of the manufactured article than even its discovery presented, which the proprietors had to contend with, and which very nearly frustrated all hopes of their being able to bring this charming novelty under the notice of the discerning public.

The first consignments of this beautiful fictile composition were displayed by Messrs. Wittmann and Roth of Great Marlborough Street, under the then supposed taking name of "Russian glass." The specimens exhibited only attracted a few observers, unhappily of that class who are not sufficiently assured of being possessed of the requisite authority in matters of taste to warrant them in introducing novelties such as these into their home decorations, without having first heard the cry of the critics in such matters, who, strange to say, were one and all silent on the subject of Iridescent Glass.

For this reason, the chances of these rare works of inexpensive art ever becoming popular in England seemed somewhat remote, but being convinced that the work had in it intrinsic merits deserving recognition on the part of the public from an art point of view, Messrs.

Wittmann and Roth resolved to continue the investigations into the mode of its production; and at the same time selecting the most appropriate designs for its display, they spared no outlay in order to secure drawings and models of rare works of classic art workmanship, such as are to be found in great abundance and in the highest state of preservation amongst the Greek vases of perfect form in our own National Collections. These, together with some splendid examples of Oriental design from the India Museum, and other less costly but equally pleasing patterns from other legitimate sources, have supplied types of ornament which are here reproduced with a care that leaves nothing to be desired. Furthermore, where it is possible to introduce surface decorations of sufficient refinement to add another beauty to so dainty a material, the same high authorities have

nacreous surface of these ancient glass objects has in time robbed the glass beneath of its transparency, that it has become, owing to the lustre, semi-opaque, and that the prismatic effect is due to a change in the texture of the glass itself. Window glass exposed to the action of the atmosphere for long periods of time becomes iridescent, as will glass buried in rank soil; but this many-coloured effect is more or less superficial, and resembles—in colours at least—the effect of a thin film of oil or tar when poured upon water. We have before us a fragment of a pale green glass drinking cup, decorated with an ivy wreath of darker colour, which a few years ago, on removing it from a monument in Crete, where it had lain for centuries undisturbed, was beautifully iridescent; but this fine effect has almost passed away from the relic since it came into our possession. The



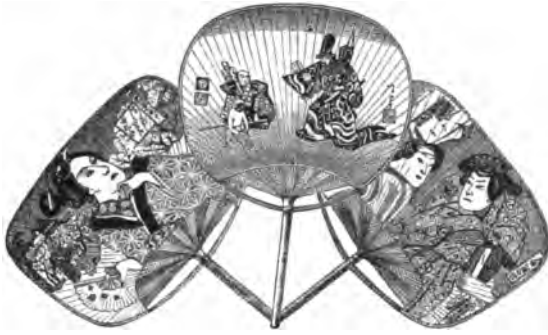
IRIDESCENT GLASS VASES OF ETRUSCAN AND ORIENTAL FORMS WITH APPROPRIATE DECORATIONS.
FROM DESIGNS BY MESSRS. WITTMANN AND ROTH.

been consulted with a success that is but faintly indicated in the accompanying engraving.

In searching amongst the glass antiquities of our museums, there are many fine examples of iridescent or rather opalescent glass objects to be noticed; but these very curious and no less charming effects are due to the effect of the kind of "sea change" they have undergone during the long lapse of time since they were first placed in the depositories where they have been found, rather than to the skill of the ancient craftsman who constructed them with such enviable taste. Bronze objects resemble glass of ancient manufacture in this, that after centuries of exposure to chemical action in the earth where they are found deposited, they also undergo an equally strange surface change in acquiring the elegant green colour known to connoisseurs as *verd-antique*.

It will be observed that the opalescent, pearly, or

lustre of Opal is due to refraction caused by the number of parallel plates of which it is composed; and for this reason, soapy water entering between the laminæ destroys the luminous effects of the stone. Labrador Spar is also highly iridescent, but the plates of which it is composed are much more solidly compacted. Close examination has not thrown any light on the cause of iridescence in glass, and as yet the secret has baffled every effort of its copyists to produce anything approaching this material in either effect or brilliancy that we have seen. The glory of the new prismatic iridescent glass is beyond all description beautiful; the glass is massive, and seems as capable of enduring the wear of every-day life as the finest cut decanter which has stood for years the usage of a well-regulated household. The cost of these beautiful objects is so moderate, they will readily come within reach of the possessor of even a slender purse.



JAPANESE ART IN LONDON.

THERE is a widespread but very erroneous impression amongst us, that the artistic handicrafts for which Japan has been famous any time this hundred years have deteriorated greatly of late, through the greed of our merchants trading with Japan on the one hand, and the unscrupulous dishonesty of native workmen on the other. These alike seeking to enrich themselves at any hazard by means of the rapidly increasing facilities for buying and selling, contrive to palm off on the unwary a vast quantity of exceedingly trashy goods, to the detriment of everyone concerned. It only needs, however, we are assured by the best informed on the subject, sound judgment and that ordinary power of observation for which unhappily so few of us are accredited, to avoid making a blunder in the selection of Japanese lacquer ware, or bronzes, or carved ivories, or tissues, or any of the other thousand products for which this ingenious people is so justly famous.

Of course the continually growing demand for choice art products has for the moment stimulated the cunning of the caterer for the market at the Japanese ports, but as in Japan and China the universal love of finely executed works of art is no new craze as it is with us, but is the steady growth of centuries of culture and refinement, it is not likely, where the desire of the wealthy Buddhists is so keen to be possessed of such productions, the skilled artificers will ever degenerate to any serious extent by reason of the contamination of foreigners and the increased demand for their wares now that the Christian nations of the earth are so ready to trade with them.

Cheap lacquer ware, of course, is now manufactured in great abundance for the foreign markets, where its want of value is not understood, and where its want of excellence is likely to escape criticism altogether.

We have fortunately in London, however, merchants trading with Japan who have made the products of the Archipelago their special study, who have read Kempfer, the earliest European writer who drew attention to the then little-known people and their industries in the year 1729, who have learned from Thunberg and Von Siebold, whose magnificently illustrated works give us as complete

an insight into the genius of the race as if we visited the rich collection at the Hague or set out on a tour through the islands some 9000 miles away. Of modern English writers there is not one worth consulting; there is nothing in their books of any interest, and but very little amusement can be derived from the perusal of their tedious lucubrations that can by any means be rendered available for information, if we contrast the very feeble descriptions they usually contain with any series of photographs recently made under the directions of some one qualified to point out what is curious or acceptable in their costly details of architecture or their varied articles for everyday use.

We recently had the opportunity of examining some of the more valuable importations made by Mr. L. Liberty of Regent Street, which, apart from the interest they possessed as being quite novel to us, were, in the strictest sense, of a highly important commercial value. Thus, besides the bronzes and blue jars and fans and little ivories of quaint design one is accustomed to see in every emporium of the kind, which, owing to their frequent occurrence, do not tend to raise the opinion we form of a people's industry, there were in addition some superb specimens of carved and inlaid and incised wood, suitable for introduction into modern high-class furniture, of the highest art excellence and of first-rate workmanship. Here were lengths of open-work lattice, some almost as fine as lace, others of strong material, but equally perfect in finish. Specimens of inlaid woods of a character to astonish the makers of parqueterie flooring, the patterns refined and full of suggestions. Here were panels of beautifully *figured* native woods, the wave lines resembling clouds, across which a flight of storks were winging their way, the seeming motion of the birds being effected by an ingenious device—the birds were outlined by open-work incisions through which the light freely passes. Here were samples of highly polished bamboo plaques or slabs, perfectly flat, and resembling ancient ivory in colour and texture; upon these broad surfaces landscapes and figure subjects were sparingly figured in metals of various colours but in the best taste. Coarse-grained woods carved in conventional patterns of foliage and arabesques were evidently intended for inserting in modern furniture, and several other available details of good workmanship, some as massive as others were minute in finish, filled the store-house, where these treasures of art are shown to the manufacturers.

It is the importation from Japan, and, for that matter, from our Indian possessions, of really useful articles that can be readily incorporated with our own handicrafts, that will tend to make us acquainted with the capabilities and uses of many foreign products which now only serve to encumber our museums, and embarrass the curators to whose care they are confided.





REVIEWS.

Hints on Household Taste in Furniture, Upholstery, and other Details. By CHARLES L. EASTLAKE, F.R.I.B.A., Architect. 4th edition, revised. Longmans, Green and Co. 1878.

THE accomplished author, in the preface appended to this volume, says that in earlier editions of his book he expressed a hope that a time would come when those who are chiefly concerned with the control and management of industrial art in this country would perceive the necessity of meeting a demand, which has existed for some time past among our art-loving public, for improved taste in objects of modern manufacture.

He finds the hope at length realised, if not to the full extent which he had anticipated, at least as regards many branches of trade in which the principles of good design had long been obsolete.

No one, says Mr. Eastlake, truly interested in such matters, can fail to have noticed the remarkable change which has taken place within the last few years in the character of domestic furniture, especially of cabinet work, textile fabrics, and pottery. And although the benefit of this change is occasionally marred by the ignorance of second-rate tradesmen, who in their plagiarisms of good work have missed the real spirit of its design, it is satisfactory to know that some of the oldest and most reputable firms of manufacturers in London, Manchester, and Birmingham are seeking advice and assistance from competent designers, with a result which has a directly beneficial influence on the nature of their productions. Glancing with satisfaction at the steadily increasing number of artistically appointed houses springing up in our midst, the writer goes on to say that the progress of industrial art is not likely to be arrested by the narrow prejudice of those whose perceptions of beauty in human handiwork are strictly limited to the fields of painting and sculpture, nor by the sneers of ignorant critics, who imagine that every departure from the conventional type of chair or table in ordinary use must necessarily be attended by personal inconvenience.

Mr. Eastlake takes it for granted that when the attention of the public was first directed to this subject, "the furniture of the day was of such a vulgar and extravagant kind, that those who advocated a reform in this depart-

ment of art were tempted to recommend a return to the earliest and most archaic types of design, as an escape from the evil which they denounced. But study and experience have since proved that the internal fittings of a house may be made picturesque and interesting without being rude and clumsy in form, and that it is not so necessary to sacrifice the refinements and comfort to which we are accustomed in the nineteenth century, in order to secure simplicity of style." In preparing this edition the author has felt constrained to replace some of the original illustrations by others, more representative of the advance which has lately been made in the character of contemporary manufacture.

We propose giving a few passages taken at random from the pages of Mr. Eastlake, in this our first notice of his really valuable contribution to the history of the progress of industrial art amongst us; and as he is by profession an architect, his views of street architecture must of right have precedence. Speaking of our modern streets, and selecting the region of the West-end Clubs, he points out "they are but copies, and not unfrequently vitiated copies, of actual buildings, illustrating an exotic school of art which had never a footing in England until our own had been lost or degraded. The so-called Italian style, now understood to include every variety of Renaissance design which prevailed in Rome, Venice, and Florence from the sixteenth to the eighteenth century, has its æsthetic merits and advantages, which are unsuited to the age, to the climate, and to the country in which they are reproduced. It does not require the judgment of an accomplished connoisseur to perceive that mouldings and carved enrichments which look well under the glowing effect of a Venetian sky, must appear lame and spiritless through the leaden atmosphere of London.

"We want in England a less refined, and more nervous expression of architectural beauty—bold and sturdy features, which will hold their own against wind and rain, and defy the smoke and traffic of our busy coal-burning towns.

"But it is not often that we can complain with any reason of undue refinement in our imitations of Italian architecture. Even those which are confessedly copied from old examples miss, either intentionally or through inaccurate workmanship, the delicacy of the original design. And in too many instances, where our archi-

pects have ignored the value of precedent, and struck out a line for themselves, the result has been hopelessly clumsy or bizarre. It is only by a long and careful course of study, based on naturally good and inventive taste, that these mistakes can be avoided on the part of the designer. And it is only by the well-directed and long-sustained efforts of designers, that the British public will ever be brought to distinguish good from bad in modern architecture." Passing over a great deal of matter which must appear indescribably needless to people of cultivated taste, accustomed to the comforts of a home of any standing, to whom the necessity for going to first principles, so to speak, on matters of household arrangement are altogether needless, we come to the question of cost. "A feeling is, I trust, being gradually awakened in favour of 'art furniture.' But the universal obstacle to its popularity up to the present time has been the cost which it entails on people of ordinary means. And this is a very natural obstacle. It would be quixotic to expect any one but a wealthy enthusiast to pay twice as much as his neighbours for chairs and tables in the cause of art. The true principles of good design are universally applicable, and, if they are worth anything, can be brought to bear upon all sorts and conditions of manufacture.

"There was a time when this was so, and indeed it is certain that they lingered in the cottage long after they had been forgotten in palaces. Every article of manufacture which is capable of decorative treatment should indicate, by its general design, the purpose to which it will be applied, and should never be allowed to convey a false notion of that purpose. Experience has shown that particular shapes and special modes of decoration are best suited to certain materials, therefore the character, situation, and extent of ornament should depend on the nature of the material employed, as well as on the use of the article itself. On the acceptance of these two leading principles, now universally recognised in the field of decorative art, must always depend the chief merit of good design.

"To the partial and often direct violation of those principles, we may attribute the vulgarity and bad taste of most modern work."

(To be continued.)

The Silversmith's Handbook; containing full Instructions for the Alloying and Working of Silver, including the different Modes of Refining and Melting the Metal, Methods of Manipulation, Prevention of Waste, Instructions for Improving and Finishing the Surface of the Work, together with other useful Information and Memoranda. By GEORGE E. GEE. Crosby, Lockwood and Co. 1877.

Only a few months since we had occasion to notice with sincere commendation a work by the same intelligent author on practical gold working, regretting only that the work he then put forward was so meagre in

comparison with the importance of the subject. A perusal of this second volume satisfies us that the writer has the knack of extracting the essence of his subject; and choosing rather to give the pure metal of his knowledge without the dross or alloy of verbiage, he manages to condense what he has to tell into the most limited space, without depriving his facts of their significance. Thus a survey of the table of contents will disclose the wide range of his information, while an actual reference to any subject contained in the pages will satisfy the most exigent inquirer.

The volume, in fact, supplies a want long felt in the silver trade, namely, a work of reference from which artisans, apprentices, and manufacturers, and for that matter, buyers also, employing the material, may find information which will be of assistance to them, enabling the practical silversmith to become a perfect master of his art or profession, for at present the vast majority of working silversmiths know very little of the physical and chemical properties of the metal they employ, still less of the comparison it bears with other metals in the field of science. This want, says the author, is nowhere more apparent than in our own country, where the English workman in art education is much behind the foreigner, and yet, he says, we have some of the finest and best workmen in their *special* branches in the whole world.

The English workman believes that if work is worth doing at all, it is worth doing well; and one need have no hesitation in saying that, if a good technical education were afforded concerning the precious metal trades, he would have scarcely an equal and certainly no superior abroad in art workmanship, both in respect to the display of good taste and judgment, combined with a knowledge of design, so far as the exercise of these qualities is compatible with the manufacture of articles specially designed for use or ornament.

With such honest convictions an author is sure to obtain the attention his earnestness justifies, and entering at once into a clear and succinct account of the properties and nature of pure silver, which by the bye is found "native"—that is, as a pure metal—on rare occasions in England, but nearly always associated with other metals, from which it is separated by various well-known devices, the author makes sufficient allusion to its use in ancient times, and then stopping for a moment to speculate upon the probable effect of the enormous issue of silver from the Nevada mine, which is undoubtedly the richest in the whole world, he settles down to his undertaking in the third chapter on the assay of silver ores. We do not intend following the admirable course pursued by the writer, who devotes chapter after chapter to the cupellation-alloys and working of silver, since few of our readers interested in metal working will remain long without a perusal of his pages. We hurry to that section of the book which bears upon the question of taxation of silver and the licences to sell manufactured silver goods. It should be known that manufacturing silversmiths, and all persons trading

in silver wares of more than five pennyweights each, are compelled to take out a licence, paying £2 6s. per annum, or if selling articles weighing over thirty ounces, they pay £5 15s. A duty of 1s. 6d. per ounce is charged for Hall-marking on five-sixths of the weight if unfinished, as there is a calculated loss of one-sixth on finished articles.

This duty is, as our readers are aware, considered excessive, and to it is attributed the loss of talent in designs for silversmith's works, the trade being proved to have a tendency to become less every year; but Mr. Gee states that on the bulk of the trade this duty has no injurious effect whatever, since the duty is only paid on manufactured *plate* and such other articles as the purchaser seeks to have Hall-marked; besides which, the trade in this

We doubt, however, the conclusion the author arrives at when he declares "that the users of Hall-marked silver are so few in number, that if the obnoxious duty were removed, the demand for such goods could possibly increase;" and while he admits the anomaly of a duty of 20 per cent. in spoons, or one of 15 per cent. on chains, or of 12½ per cent. upon tea sets, as appearing unjustly oppressive and undoubtedly affecting the *silver plate* manufacturer more vitally than any one else, "to the ordinary silversmith this question of duty is not likely to be of much importance. The agitation therefore commenced against it may be expected to confine itself to those persons more directly affected and whose interests would be advanced by its abolition." The question then



DINING-ROOM CHAIR, WITH STAMPED LEATHER SEAT AND BACK.

particular department of manufacture has never been very extensive, being confined to a few firms of eminence only.

Thus there are vendors and dealers, refiners and assayers, who pay for *licences* and *duty*; of these the manufacturer of plate, such as spoons, forks, snuff-boxes, and other articles of luxury is compelled to pay duty, and to have his goods Hall-marked, watch cases being exempt. The wares manufactured by the trade at large and not coming under the compulsory provisions of the law bearing upon the subject are vast in number, and are rapidly increasing, the commercial industry which has sprung up of late years bidding fair to become one of the staple trades of the country, quite independently of the restrictions imposed.

of licences is one of far greater importance to the trade generally than that of duties, every manufacturer and dealer being compelled to procure a licence before he can carry on his business.

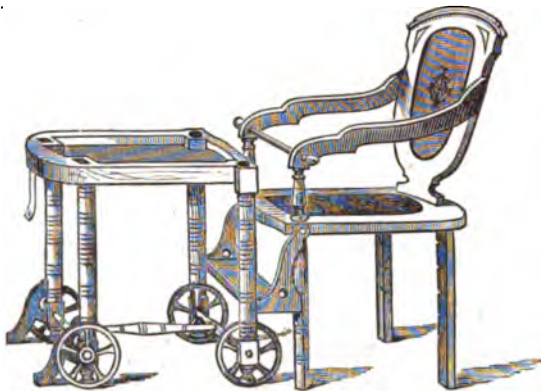
If more direct action were taken in regard to this particular question, the whole trade would enter into it.

In a general survey of the workmanship of other countries, it is stated that France carries off the palm in beauty of design, but fails in the matter of solidity when compared with English work. Germany has not yet succeeded in making attractive or lasting silver ware. Austria endeavours and often succeeds in ornamental enamels and niello works, which are pleasing, but at the same time have the *tinsellified* effect of French work.

NEW INVENTION.

NEW CHILD'S CHAIR.

THE unprecedented success of that very faulty arrangement invented by an American with which we are most of us acquainted, and which always seemed to us the very clumsiest of modern nursery appliances, has been superseded by a really practical and useful



CARRIAGE TABLE AND CHAIR.

piece of furniture contrived by Messrs. Lawes and Co., of the City Road. Various figures of this chair accompany our notice.

Its advantages are obvious; the child runs no risk of having its little fingers nipped in unnecessary joints or

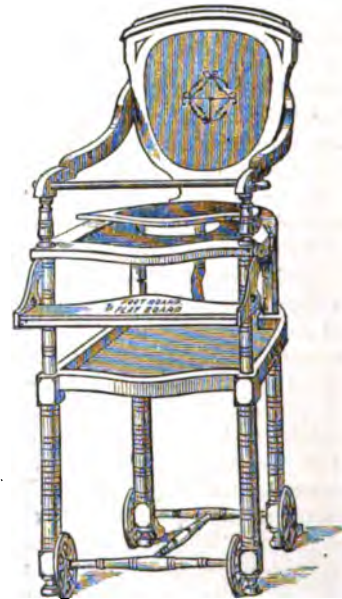


CHAIR AND CARRIAGE COMBINED.

projections, the nurse need have no elementary knowledge of mechanical laws in adjusting its simple adjustments, freed as they are from any needless complications. It is simple in its object, and its practical application is readily understood. Provision has been made for

securing the little occupant from the risk of being overturned when seated at an ordinary dinner-table, so that it cannot by any means effect that dreaded danger. The seat can be removed from the table on which it rests, and the table can be made to serve the purpose of a safe wheeled carriage or a highly prized toy, which occupies no more space in its new capacity than when serving as a table proper. The American chair, when applied to the purpose of a carriage, occupied too much room to make its use possible in any ordinary nursery.

The seat of the chair being interchangeable, is in every respect identical with the oldest form of this very important article of furniture, so much prized by nurses



CHAIR AND COMMODE.

everywhere, and the materials and workmanship being of the very best procurable in London, this new chair is certain to secure the approbation of every one interested in the welfare of little people, for whose comfort and convenience it has been specially designed as a national nursery chair.

During our visit to Messrs. Lawes and Co.'s, we had the opportunity of examining their costly collection of rare wood for the construction of first class furniture, and the workshops, where an amazing quantity of furniture is manufactured for the home and foreign markets. We propose giving an account in detail of this exceedingly enterprising firm at an early date.



NOTES.

ONE OF THE MOST magnificent monuments of Etruscan monumental art in terra cotta has been discovered at La Martinella, a hill in the neighbourhood of the town of Chiusi, in the province of Siena, district of Monte Pulciano, on the railway between Orvieto and Ascanio in North Italy. It consists of the usual terra cotta coffin, containing the bones of a female, whose effigy is represented upon the lid in exquisite workmanship and in glowing colours, which have not faded in the least since the entombment was made, about the year 550 of the city of Rome, for a Roman *as uncialis* of that period was found with the skeleton, which evidently had not been disturbed during all that long distance of time. The couch upon which this dainty figure reclines is supported upon five Ionic pilasters, which partially conceal the coffin. Her left arm rests upon soft pillows, the hand, adorned with five rings and holding a wine cup, presses against the embroidered pillows with graceful action; her right hand partially removes a long veil of thin woven material which, wrapped about her head, sweeps over her breast in easy folds. Her dress consists of an outer and inner robe of some soft material, which descend to her feet, and are gathered in at the waist by a girdle wrought with embroidered patterns. The gathers at the throat are confined by a gold clasp, on which is figured the head of a Gorgon wreathed with snakes. Her head is bound with a coronet, and a string of minute jars of Etruscan shape serves as an ornament to her neck; she wears long pendent earrings. The light costume, descending in graceful folds to her feet, partially discloses the jewelled sandal of one small foot.

Nothing can exceed the beauty of this fine work of art, which, with several silver ornaments for personal use, were found whilst excavating a hillock in the neighbourhood of the town. These consist of two ivory jar-shaped cups, a bronze vase, some balls of crystal, pincers for extracting superfluous hair, a cup, some hair pins, and a few other articles. The inscription on the cement used to bind the lid to the coffin seems, beyond a doubt, to have been impressed by means of types, and not inscribed with a tool, as was the usual method adopted. This plan of printing by movable type at so early a date will be of great interest to our readers, who have not hitherto been able to fix with any certainty the earliest known time when such appliances were adopted.

Some bronze vases of great size have been brought from the same locality, which differ from others hitherto noticed in being constructed out of hammered plates of bronze riveted together and not soldered. The rivets are evidently of older date, since the great horn which rests beneath the Dying Gladiator is represented as riveted throughout its entire length with small nails; and there are specimens of very ancient Celtic bronze work in the museums, which are joined along their edges in the same manner.

THE ÉCOLE DES BEAUX-ARTS of Paris is now pressing on the completion of the museum of plaster models of sculpture and architecture. At present the committee is busy with the moulds from the finest known specimens of sculpture and architecture, belonging more particularly to the Renaissance period. It is to be hoped that the recently propounded theory of indurating the casts made from these moulds by the process formulated by the German professor, Dr. W. Reissig of Darmstadt, will not be accepted as final. This

experimentalist has recently obtained a prize offered by the Prussian Minister of Commerce and Industry for the best method of preparing plaster casts to enable them to resist the action of water, etc., in cleaning.

By this process, or, in fact, by the two methods arising out of the same process proposed, the plaster or sulphate of lime is converted into sulphate of baryta and caustic lime, or it is changed into silicate of lime by the use of silicate of potash. The objects to be acted upon are dipped into a strong solution of these chemicals, and on being exposed to the air and treated with a *coating of soap*, are said to be made perfectly capable of resisting damp, etc.; but all attempts at treating plaster of Paris by baryta, although they have more or less succeeded for a time, have one and all signally failed in accomplishing the object sought for. A few seasons of heat and cold, moisture and dryness, have rendered the plaster in every instance so brittle, and in other ways so unsatisfactory, that experimentalists have well nigh given up the investigation, despairing altogether of success with so apparently intractable a substance. It remained for Mr. Westmacott, to whose discovery we have already drawn attention, to perfect a process upon which he has been many years engaged, by which he has succeeded in permanently altering the character of the plaster into a material closely resembling either ivory in texture and character, or marble which sparkles, and is adapted for open air purposes without any admixture of stearine or soap, the introduction of these materials being obviously altogether fatal to the success of any attempt with plaster of Paris, as may be seen in any cast where either of these products have been applied, notably in the preparation of the statues in the hall of the Royal Academy, where already the figures so treated have become offensively foul through the use of such uncongenial materials, with whose composition plaster has no affinity whatever.

We hope to see some fine specimens of this so-called "Westmacotta" at the Exposition of Paris this year, when the jurors will have the opportunity of submitting specimens to any test that may be deemed necessary for proving the value of this really important discovery.

A GILT SILVER VASE or goblet of the middle of the sixteenth century, and of exquisite workmanship, has been brought to England from Holland lately. The lid is ornamented with six heads in *repoussé* of the kings of the Lancaster and York families, Henry IV., Henry V., and Henry VI., Edward IV., Edward V., and Richard III. Around the foot of this vase are engraved the words, "In remembrance of my dear father Count Lenox, by his grateful son Count Darnley, King of Scotland, and Mary, Queen of Scotland, 1564." According to the French architect and antiquary, M. Viollet-le-Duc, this object, which stands about two feet high, is perfectly authentic, and was manufactured either in Louvain or Mechlin about the middle of the sixteenth century. It must have been presented by the King and Queen of Scotland on the occasion of a ceremony.

THE OPERATION OF TANNING is simply a combination of an antiseptic substance with animal skins, which transforms the skin into supple and imputrescible leather. From time immemorial the tannin contained in the bark of oak was almost exclusively used for this work, with the exception of sumac, used to tan Russian leather, and *Polygonum amphibium*, which contains more tannin than oak bark, and which has long been employed on a large scale in the United States. These processes have the disadvantage of requiring a considerable time—altogether about fourteen months—to complete the operation. An Italian chemist, M. Paesi, of Mortara,

has discovered a new and much more rapid process of tanning. It consists of letting the skins macerate in a bath of perchloride of iron and marine salt, in solution in water. The total operation lasts only from four to six months, of which only the half is for tanning proper. Moreover, the perchloride of iron, being a powerful disinfectant, the new mode of preparation insures the wholesomeness of an industry which has hitherto been very nauseous. The French "Journal d'Hygiène" has called particular attention to this process, and the Conseil d'Hygiène of the Puy de Dôme has undertaken new experiments on the subject, with a view to remedying in certain quarters of Clermont and Ferrand the infection arising from the cause referred to.

AN Industrial Exhibition was opened on the 29th of December last, at Westminster, in the Gardiner Lane Schools, under the auspices of several of the influential inhabitants of Westminster, the objects exhibited being the manufacture of the exhibitors. Prizes of some value will be awarded to the most deserving during this month.

WE have received from Mr. W. Walker, of Bunhill Row, a splendid folio volume of plates of modern furniture, consisting of some three hundred specimens. These fine illustrations deserve the best attention of those for whom so fine a work has been projected and so admirably carried out.

IN his amusing "Echoes of the Week," which add so much to the interest of the letter-press of the *Illustrated London News*, Mr. George Augustus Sala writes as follows :

"What is Truth in Art? The Duke of Somerset in distributing the prizes at the Torquay Science and Art School last Saturday dissents from the proposition that Truth in Art is "everything." *Per contra*, the Right Hon. R. A. Cross, M.P., has just delivered at a prize meeting of the students of the metropolitan drawing-schools an address on artistic truth, which oration, with the honestest possible intention on the part of the speaker to be logical, is, in reality, full of the most amazing paradoxes, and which, unless distinctly controverted by those who are practically as well as theoretically familiar with art, would be calculated to do great mischief to the cause of technical education: the fostering and advancement of which are among the main objects of the Art-Schools in connection with South Kensington.

"Mr. Cross indignantly protests against the employment of any imitative process in art when the result of that process is to convert one material into the semblance of another. He holds that it is in the highest degree reprehensible in a workman to paint and grain a piece of deal so as to make it look like oak; and, *ceteris paribus*, this would apply to the simulation of other kinds of costly woods, to the ingenious art of veneering, and to the delicate craft of veining wood in imitation of marble. There are three essentially "technical" callings which would be at once swept away if the Right Hon. Home Secretary's whim were gratified. I will tell him of another industry which would be utterly destroyed if his doctrine prevailed. Iron is now enamelled with so much dexterity, with such beauty of design, and with such brilliance of hue as to resemble the best painted pottery. It has come to be an article of almost universal use, as, although its colours are as imperishable as those of porcelain, it is not fragile. But it is iron and not earthenware, and must consequently come under Mr. Cross's ban. An electro spoon or fork is not True—is not silver—is (on the deal-oak principle) a Sham, and should, according to Mr. Cross, be put down. Call you this backing of your friends? Is this helping the cause of technical education?"

LIST OF ILLUSTRATIONS.

	PAGE
At the marriage of the Duchess of Norfolk there were twelve bridesmaids: each of them was presented with a bracelet of a most beautiful design and of great value. The manufacturing of these presents was confided to Messrs. White and Campbell, jewellers, 133, Bond Street, London. The bracelets are composed of massive gold flexible bands of an arabesque design and richly studded with pearls. The crystal centre is set with pearls, and bears the monogram in diamonds of the bride's name—"Flora" surmounted by the ducal coronet. The centre-piece of each bracelet may be removed and worn as a pendant	1
Initial letter K, designed in the year 1551 by G. Tory, an artist of Lyons, copies of some of whose work have already appeared in these pages	1
Black and gold frame	3
A fine specimen of a majolica urn, having the old symbol of a pelican as a handle to the work, with massive rustic handles and finely painted landscapes, is Italian work of the sixteenth century	5
The initial letter P is from a missal, dated Zurich, 1549	6
The chair in carved ebony, copied from a sixteenth century pattern, contains many details of ornament which have been frequently copied with more or less good results. The mounting of this fine specimen of upholsterer's work is in perfect keeping with the chair, being in rich violet coloured cut velvet, relieved with gold thread embroidery	7
The initial letter N is copied from a Venetian MS., dated 1509	8
The fine work in enamel, representing a frame of Jacobean scroll pattern, contains a fine miniature of Diana of Poitiers, who was as great a patron of bookbinders as Grollier. It is to her the French nation is indebted for the foundation of the National Library of Paris. Many fine bindings bearing her cypher, often with appropriate mottoes, are to be found in our own and continental public and private libraries	9
A corona lucis, designed by H. Claus of Vienna, is fine in its details. The glass dishes are quite in harmony with the general design, but do not appear exactly suited for the purpose for which they are usually intended	11
An Etruscan vase of Archaic type, which will be described in full detail in a succeeding number	13
The design for a decorated ceiling for the chamber of the States General of Holland in the sixteenth century, by D. Marot, who has inscribed his name upon the work, contains many elements of beauty, which will doubtless be appreciated by ornamentalists at the present day	15
Carved frame for looking glass	17
The specimen of hammered iron-work, representing a pair of iron supports for heavy logs of timber, was manufactured at Venice in the year 1577, as the date upon the work itself testifies	19
A Greek vase of peculiar form, to be described hereafter	20
Specimens of iridescent glass vases, selected from original models in the British Museum, the Indian Museum, and the South Kensington Museum. The fine effect produced by the raised ornaments in coloured glass can hardly be given in an outline engraving of these admirable decorative objects. The extreme care bestowed upon the selection of the details of patterns chosen is quite worthy of this elegant and novel application of glass to the purposes of decoration	23
The three Japanese fans are arranged simply after a custom very common in the houses of the Japanese, a pattern frequently occurring in their works	24
Gold embroidery on red velvet or cord-du-Roi	25
Chair of the period of the First Republic	27
The child's chair, invented by Messrs. Lawes and Son, is given in three different positions. The success of this chair has been unprecedented	28

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See Jurors' Report. Class xvi., page 4.

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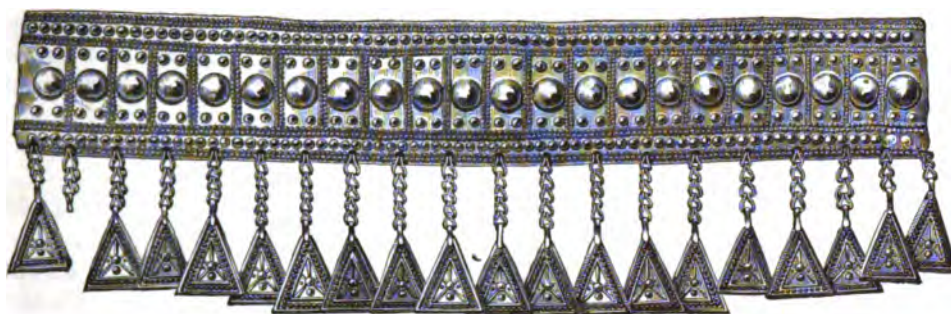
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THE JAPANESE NAVY.



AMONGST the most important indications of advancing civilisation in the country of Japan is the fact that that nation has lately embarked in the construction of modern

ironclad ships of war, and has engaged the most eminent English constructors and large staffs of English naval officers to build, equip, and command their vessels. In the year 1875 an order was given in this country, through the agency of the Japanese ambassador, His Excellency Wooyeno Kagenori, for the construction of three vessels of war, intended to take the first rank in the operations of the Japanese navy. These three vessels are of two classes, presenting very marked differences of design. Mr. E. J. Reed, C.B., M.P., to whom the design and supervision of the contract was entrusted, advised the Japanese Government that one ship, of moderate size, constructed wholly of iron, and very completely protected by armour, carrying powerful guns and driven by twin screws, was the most suitable description of vessel to take the leading position; and that two fast, partially armoured, composite corvettes, carrying a large number of moderate-sized guns, a large coal supply, but able to sail very fast, independently of their machinery, would be of the utmost value in a small navy such as the

Japanese. Such vessels would contain many of the qualities of high class fighting ships, with all those of light, speedy, and powerful cruisers for the protection of commerce and for coast defence. As these vessels are now rapidly approaching completion, we propose to describe their general features; first stating that the *Foo-Sō*, the largest of the three ships, has been built by Messrs. Samuda, on the Thames, and the corvettes, the *Kon-gō* and the *Hi-Yei*, have been built by Earle's Shipbuilding and Engineering Co., of Hull, and the Milford Haven Shipbuilding and Engineering Co., of Pembroke.

We will speak first of the *Foo-Sō*. In her general design the vessel is of the type proposed by Mr. Reed in recent discussion as suited in many respects for our own navy; that is to say, she is a vessel combining with the primary advantages of moderate size and cost, a heavy armament, very complete armour protection, good speed, and comparatively large coal-carrying and sail power, all of which qualities make her a powerful war vessel for cruising and general purposes, and also well able to take her place in pitched battle. Two vessels of this class have been already built from Mr. Reed's designs for the Chilian navy, and it is difficult to imagine the reason why, in a naval service so varied as our own, money would not be profitably spent in building a limited number of such vessels, especially when it is remembered that we could obtain three of them for little more than the cost of one *Inflexible*.

The *Foo-Sō* is a barque-rigged vessel, having a displacement of 3,718 tons, upon a load draft of 17 ft. 9 in. forward and 18 ft. 3 in. aft; the total weight of armour is 770 tons. Her principal dimensions are:—Length between perpendiculars, 220 ft.; length of keel for tonnage, 191 ft. 2 in.; breadth, extreme, 48 ft.; depth in hold,

20 ft. $4\frac{1}{2}$ in., and tonnage 2,343 $\frac{3}{4}$. She is built with three decks. Upon the upper deck are carried two 17 cm. Krupp guns, placed in an embrasure battery, and capable of firing on the broadside, or of being used as either bow or stern chasers; these guns are of about five and a half tons weight. Upon the main deck is the battery containing the heavier guns—four 24 cm. Krupp guns, weighing fifteen and a quarter tons, and having a bore of nine and a quarter inches. These guns are also placed in a battery constructed on the embrasure principle, and having a fore and aft range of fire, closely approximating to the keel line. The ports of the main-deck battery are 7 ft. 6 in., and the upper deck 13 ft., above the load water line. The ship is designed to carry the main deck battery upon a modified "citadel" principle, that is to say, the guns and vital parts of the ship are protected on the broadside by armour 9 in. and 7 in. thick, with 10 in. and 12 in. backing, and from raking fore and aft fire by athwartship bulkheads of armour 6 in. thick with 7 in. backing. The main-deck is furnished as in the true citadel system with protective plating, and the water line for the whole length of the ship is protected by a belt of armour, which, for the length of the engines, boilers, and magazines, is nine inches thick. Mr. Reed has introduced in this vessel a system of building the armour into the hull, which is an improvement upon that hitherto applied to ironclad ships. The armour of the *Foo-Sō* is supported upon brackets projecting from the frames of the vessel, and the advantages of the plan are that the frames may be run continuously from the keelson to the upper deck without the interruption of the armour shelf as usually fitted, and that the armour plates may be applied to the ship without being bent to the vertical curvature of the side; thus saving time and expense in construction, while retaining all the advantages of the bracket system of framing. The sail area is 12,000 square feet of plain sail, but, with studding sails, the area may be extended to 17,000 square feet. The dimensions of sails and spars have been kept the same for all three ships, in order to facilitate their interchange in case of accident, and to reduce the total number of spare sails and spars. The vessel is built as a ram, and has a running-in bowsprit. The estimated speed on the measured mile is thirteen knots, the engines being of 3,500 indicated horse-power. They are twin-screw compound surface-condensing trunk engines, having two high pressure cylinders 58 in. diameter, and two low pressure cylinders 88 in. diameter, the stroke being 2 ft. 6 in. They have been constructed by Messrs. Penn and Sons, and have all the latest improvements, including Willan's patent steam starting gear, separate engines for driving the circulating, donkey, and fire-pumps, and capstan, and also fittings for using jet condensation if required. The boilers, eight in number, are designed to work at sixty pounds pressure, and have cylindrical shells and three cylindrical furnaces in each boiler. The *Foo-Sō* is fitted with Inglefield's and Roger's anchors. There is

stowage room provided for 350 tons of coal, and this is sufficient to enable the vessel, when under steam alone, to make a voyage of 4,500 miles at a moderate speed. Careful attention has been paid to the principle of water-tight subdivision, the ship being divided into thirty-two compartments, with the water-tight doors arranged to be worked from the main-deck.

The corvettes are sister ships, and identical in every respect. Their general appearance is very similar to that of the British composite corvettes, of what is known as the "gem" class; but an increased length as compared with these vessels is a great improvement, not only in point of appearance, but we believe also in speed and carrying power, and in relatively much larger boilers. The *Kon-gō* and her sister vessel have been built on the composite principle, because it was considered that as cruisers intended to keep the sea for a great length of time, it was necessary to make all possible provision for the bottoms of the vessels being kept unfouled, and this can only be perfectly done by copper sheathing applied to a hull built of wood plank. No loss of strength ensues from this system of construction if properly carried out, because, not only are the frames of the vessel made of iron, but there has been introduced into these ships a special means of giving longitudinal strength. This consists of a plate riveted to the frames on each side of the vessel, and extending through her whole length. Although the whole of the machinery has been kept below the level of the water line, yet the protection thus afforded is at best but of a very dubious and imperfect character, and what must be considered a very valuable improvement in the construction of composite ships has been added to these vessels; a belt of armour four and a half inches thick, and extending along the whole of the space occupied by the machinery and magazines, has been embedded between two thicknesses of wood planking and attached to the frames of the ship, and to the longitudinal strengthening plate. No difficulty connected with the copping of the vessel has been involved by the presence of this plate, because, the thickness of the plank outside of it being three inches, it is possible to fasten the copper on the outer sheathing of the plank without any danger of contact with the iron.

The accommodation provided for the officers and crew is very large, it being intended to carry a complement of two hundred and twenty men in each corvette. The upper deck is devoted exclusively to the guns and the appliances for navigating the ship; there is no poop, the deck being kept flush aft to facilitate the fighting of a gun directly astern. There is, however, a large fore-castle, which partially protects overhead the two forward guns. Upon the lower deck are placed the captain's cabins, the ward room, and sleeping cabins for the other officers, along with the necessary bath-rooms, mess-rooms for the warrant officers, seamen's hospital, galley, and seamen's quarters, and in the hold below are placed the store-rooms, the tanks for fresh water, the chain lockers,

magazines, and machinery. As war vessels, these ships are unusually handsome; the following are their principal dimensions:—Length, 231 ft.; breadth, 40 ft. 9 in.; depth in hold, 14 ft. 7 in.; displacement, 2220 tons; and mean draft of water, 17 ft. 6 in. They carry three 17 cm., and six 15 cm. Krupp guns; the three larger guns have right ahead and right astern fire, and, in addition to their bow and stern ports, broadside ports are provided for them, so that a fire of three 15 cm. guns, and two 17 cm. guns can be concentrated on each broadside. The corvettes' engines are on the

In addition to the main engines, the corvettes are supplied, like the *Foo-Sō*, with very complete machinery for the performance of the various duties on board a ship of war; the water for cooling the steam in the surface-condensers is pumped by a separate engine driving a centrifugal pump of great power, and, in addition to three large hand-pumps placed on the lower deck, and drawing water from all compartments of the vessel or from the sea, there are fitted separate steam-engines driving double action pumps, which are also capable of drawing water either from the different compartments of



PORTION OF STAINED GLASS WINDOW. BY F. X. ZETTLER OF MUNICH.

compound surface-condensing principle, capable of exerting 2500 indicated horse-power, on a very small consumption of coal; each ship is fitted with six cylindrical boilers carrying steam of 60 lbs. pressure per square inch. The engines, which have been made by Earle's Shipbuilding and Engineering Company, of Hull, from the same patterns for both the sister vessels, drive single screws, and are of the return connecting rod type, with two cylinders, the high-pressure cylinder being 60 in. diameter, and the low-pressure cylinder 99 in. diameter, with a stroke of 3 ft. 3 in. for both cylinders.

the vessel or from the sea, and of delivering it into the boilers, or on the decks for washing or fire service, or overboard. The main engines are fitted also with hydraulic reversing gear, which enables the engines to be started, stopped, or reversed, in a very few seconds, and in the case of a war-vessel whose fighting power so very largely depends upon quickness of manœuvring, this is a very important advantage. Arrangements are made for the disconnection of the screw-propeller from the engines, so that it may not impede the vessel's progress through the water when under sail alone.

WINTER RAMBLES AMONG THE MOORS.

THERE is a striking resemblance between the natural features of Southern Spain and the neighbouring coast of Morocco. As on leaving Gibraltar you cross the narrow strait which separates two continents—nautically known as the Gut—and the wild hills of Andalusia grow dim and blue in the ever increasing distance, a larger Spain seems to rise before you. Huge masses of bare rock lie piled in grand confusion from Spartel to Ceuta, their grey sides ribbed and cavemed after the pattern of those you gazed upon from under the shadow of Calpé, with here and there a patch of green denoting an orange garden or grove of lemons. From the solitary light-tower of Spartel—the only one in all Morocco, I believe—to where the Mountain of Apes upraises its iron crest, the delighted eye rests upon a succession of rugged hills and precipitous valleys, all indescribably softened by that delicate haze which is born of an African sun. The fast fading ranges of the Peninsula seem the reflection of their great rivals beyond the water, as mirrored in an ocean of unclouded sky, so magic is the atmosphere of these genial climes and so fantastic the ideas suggested by such a scene.

At a distance the results of human labour bear a similar resemblance, reminding one of the perhaps too cynical observation which extended the limits of African influence to the Pyrenees. Allowing for difference of situation, Tangier is not unlike “fair Cadiz.” White is the prevailing hue; the houses are squarish, and heaped together without any great regard to precision—wherein possibly lies their chief charm to Antinomian heretics like myself. A nearer inspection, however, reveals new features. We are no longer in Europe. Slender mosque towers become distinguishable, their shining sides inlaid with tinted plates of azure, and summits tricked out with warm-hued tiles. Round the town runs a wall, presumably intended at one time as a protection, which culminates in the frowning *Kashba*, or citadel, whose guns, planted upon the side of a considerable hill (I have occasion to remember a painful walk up the stony lanes of the eminence in question), command alike the entrance to the bay and the ancient city they were destined to defend.

Tangier contains many sumptuous edifices, but they are mostly of a mongrel character, and in spite of its being one of the oldest towns in the world and belonging to the least progressive of all governments, intercourse with the north has robbed its habitations of the distinctive charms of purely Moorish structures—coolness and repose. It is the city of legations and the second home of the “rock scorpion.” It is busy and brilliant, but in the feverishness of its semi-European

life we shall miss the bracing influence which invariably comes from the contemplation of primitive forms.

We must leave Tangier, and bid farewell to the very echo of civilisation, to take horse or steam for the neglected spots of the western coast. Here, lashed by the gigantic rollers of the Atlantic, we shall find ancient and stone-walled towns, peopled by a race—or rather by races—who have nothing in common with modern ideas except a very ready and unquestioning adherence to the worship of the golden calf. The earth contains no keener devotee to the commercial principle than your native of Barbary, whether he be Moor, Arab, or Hebrew; yet it must be borne in mind that intercourse with foreigners is strictly confined to the transactions of business, and that to obtain access to the domestic life of the better classes—particularly among the Mohammedan population—is a privilege rarely if ever accorded to Europeans. Turkey is considered sufficiently intolerant, but the mosque of St. Sophia is open to Christians no less than the grand structure devoted to Mohammed Ali in Cairo. To the best of my knowledge, no Christian has been known to enter a mosque in Morocco and leave it alive: even to sketch the exterior is a tentative which may cause unpleasant consequences. I have met with few individual Moors who could fairly be called fanatical, yet in the aggregate they seem strangely wrong-headed. Perhaps it is the same elsewhere. The Moor is equally averse to admitting a stranger to his house, though by exerting a due amount of moral force this point may be gained. He is particularly sensitive on the subject of conjugal influence, and never goes out of doors without first double-locking the entrance to his *dooryah* or hareem, whose key—a formidable instrument nearly eighteen inches long—hangs ostentatiously from his little finger. The poor creatures thus immured at the high pleasure of their lord escape the little culture which forces itself upon the superior creation; and if within the borders of this empire there exists a Mohammedan woman able to write her own name, my information is sadly imperfect. Male education is certainly not very advanced. It consists of reading (the Koran), writing, and the elements of arithmetic. Knowledge of external geography is precise if limited. The merchants have heard of such places as London (a suburb of Manchester), Gibraltar and Marseilles: they send produce there. Also of Egypt and Turkey, and that the latter power has been waging war with a nation of “Nazarenes.” These are the people who, in spite of many amiable and noble characteristics, are possessed by a spirit of predestination and bigotry which has so far resisted every attempt to bring civilisation into their midst. At the very gates of Europe, whose hungering populations are looking to the uttermost ends of the earth for a more bountiful home than that offered by a used-up continent, lies this smiling empire of fatalists, who gaze with a mild wonder upon the successive failures of more ambitious

rival systems. The high pressure of nineteenth century progress is a thing but dimly imagined in this land of perpetual summer. Under skies of perennial blue, and fanned by zephyrs now wafted over the heaving Atlantic, and anon laden with odours of orange grove and geranium, we allow the remembrance of Christendom's many-sided conflicts to be numbered with the things that are past. What though pontiffs thunder and armies march! Crowns may fall, sects may wrangle, Churches

and exhausted for picturesque purposes in the pages of Murray. The announcement of a "personally conducted trip"—not mine the delicate grammatic sense to explain how and whither a trip may be conducted—would be the signal for my immediate flight. I have been led into this digression because the condition of a nation is generally the key to the true appreciation of its art products—the special object of this sketch.

Among a people whose only culture is that provided

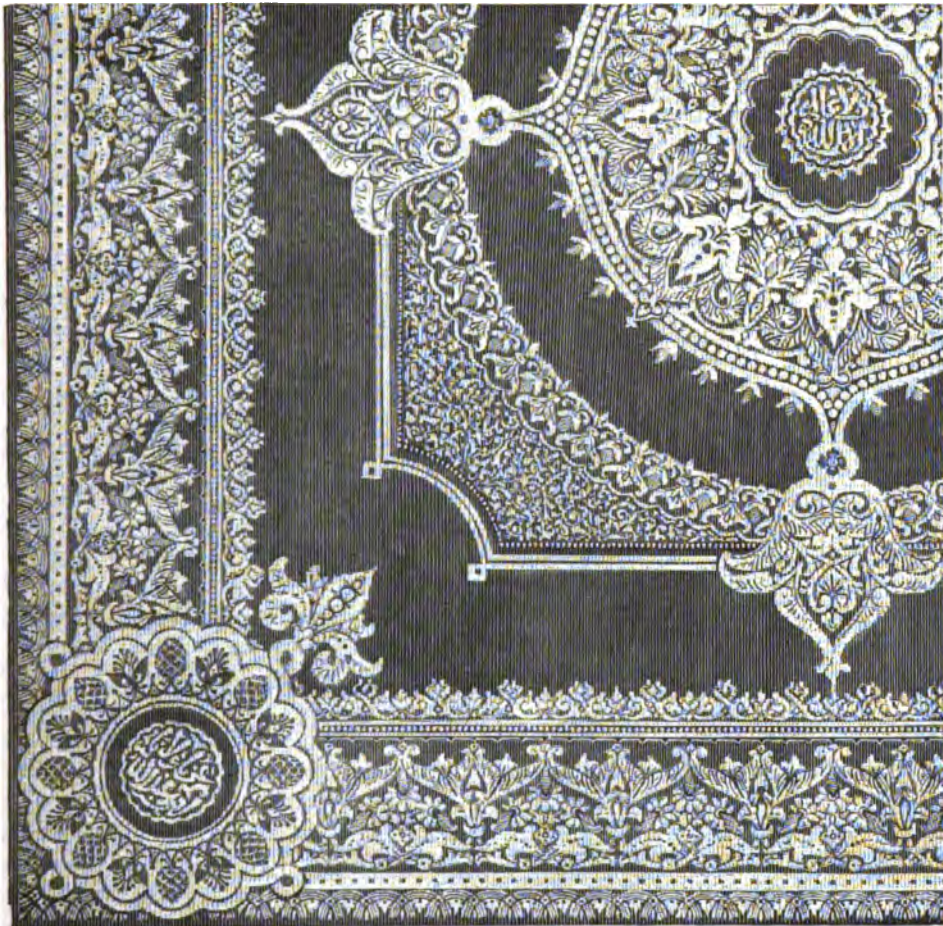


TABLE COVER OF DAMASCUS EMBROIDERY.

decay; starving populations may cry vainly for a field of labour where the generous soil shall yield them sustenance,—but what of that? His majesty and we that have free souls, it toucheth us not. "Let the galled jade wince; our withers are unwrung."

Let it not be assumed that I would recommend the "annexation" of Morocco in the interests of any number of hungry emigrants. I also know my duty to my own comfort better than to invite my countrymen to add this empire to those already overrun by the British tourist,

by a creed, we may expect to find art chiefly used as an accessory to religion. The faith of the Moors, however superficial its acceptance may be in some cases, is all-pervading; it enters into almost every detail of their daily life. Those who regard the Moslem belief as an Epicurean table of commandments, mistake the promised delights of paradise for the stern injunctions of to-day. The burdens laid by the Prophet upon his followers are, indeed, no light ones. The keenest hunger would not prevail upon a true Mohammedan to taste swine's flesh,

—no, not so much as a biscuit cooked in lard! nor would a desert thirst tempt him to moisten his lips with any intoxicating fluid. During a whole month in each year he abstains between the rising and setting sun from food and drink of every description; not only he, but his wife and such of his children as are of adult years. He attributes all events—except the results of modern science, which he frankly devotes to the Evil One—to the direct personal interposition of the Deity. He believes not in one devil, but in thousands. The genii of the Arabian Nights are to him as real as the black-eyed houris with which his happy hunting grounds are peopled; and his every-day discourse is crowded with allusions to a mythology compared with which that of classic Greece is a spiritless fable. His commonest form of thanks is an invocation of the blessing of the Most High, and many are the gushing sentences to which a deep *Allah* is the commanding substantive. I am not prepared to say that the convictions of which these seem the proper modes of expression are necessarily very deep, but merely that in Barbary they are universal. The Semitic nations have in their matchless traditions a source of belief in supernatural agency which is denied to the colder northern races, who are at best but second-hand recipients of revelation; and this belief, however powerless among them at the present day to conquer or convert a world, has vitality enough—in the absence of rival forces—to colour their existence and give form to their æsthetic aspirations.

Religious art in Morocco has but one channel; to wit, architecture. What genius the Moors may have possessed as sculptors or painters the world will never know, for their Prophet, acting in a spirit which is of course confined to Mohammedanism, enjoins obedience to the first part of the second commandment (Exodus xx. 4), without any regard to its manifest context.

The constructive art, in its application to religious uses, takes two forms; in the town we find a mosque, in the country a *sowiah*, or saint-house. The latter, as its name implies, is the place of burial of some holy man, and under this head we must include warriors who have borne the Crescent to victory, as well as princes or *chiefs* whose names have been cherished by their people. There is hardly a mountain-side anywhere between Tangier and Mogador but has its monument to a departed *sheikh*, and the mausoleums of defunct worthies—*Cid I Brahims* and *Mulai Hassans*—are as plentiful as blackberries; while all along the coast their glittering domes act as land-marks to the mariner perplexed by the seemingly eternal line of sand-hills. Within their walls the debtor finds a sanctuary, and nominally other persons dreading the retribution of the law may take refuge; but there appears some doubt of their security in serious cases, and I am indisposed to raise false hopes among any resident countrymen of mine who may light upon these lines.

It is hardly necessary to say that the "saint-house" is

not a very complicated structure. The base is usually a square, some forty feet from wall to wall, and surmounted by a kind of dome called a *koobba*, from which our word cupola is derived. This *koobba* is not quite round, as it appears in the distance, being in reality an octagonal cone whose gracefully curved sides glide into a point, from which rises a staff adorned with three or four stars and topped by a crescent. The outline of such a dome as sketched in my note-book corresponds exactly with that of the well-known Moorish arch; a coincidence which seems to indicate some deeper cause than accident for the individuality of national art. Is it not reasonable to suppose that a people whose natural home is the desert, and whose only roof for ages—and those ages the most stirring in their history—was "this most excellent canopy the air, this brave o'erhanging firmament," should seek to reproduce in their dwellings, and especially in the temples of their worship, the glorious arc beneath which their fathers lived and prayed, and to add to the simple copy of the heavens such simple adornment as is supplied by a double curve?

The walls of the *sowiah*, although of a dazzling white are not totally unrelieved; here a narrow window tastefully edged with quaint carving, and there a wonderful arch upon which immense labour has been lovingly spent, combine to render the whole both pleasing and suggestive. Talking of arches, where *could* these barbarous workmen have learned the secret of the really beautiful combinations graven around the portals of some Moorish mosques? There is an entrance in Mogador—and it is only one of many in different towns on the coast—worthy of the Alhambra itself. Surmounted by a sloping stone portico covered with grooved tiles of dark green, it forms a frame worthy of the scene presented by an impressive interior. A lofty arch of true proportions is in itself a thing of amazing beauty, but with each subtle accessory of line and curve, columns in half relief growing into graceful cornices, and every possible angularity softened by an apparently chance border of elegant chiselling, it has a charm which is none the less potent for being difficult to define. The effect of isolated works of art is great in proportion to their rarity, and peculiarly so here, where we see the æsthetic tendency asserting itself through the most primitive forms. To leave the complex creations of European industry for the contemplation of such old-world methods as I am feebly endeavouring to describe in this sketch, is like turning one's back on the labyrinth of modern existence, to seek in the desert an answer to the old enigma of our being. We travel back in a day over the centuries of secondary growth, and come face to face with the original problems. This is a country eminently fitted for the speculations of both the lover of art and the philosopher. Who drew the first curve? Whence came I? A rudely marked pile of stones suggests the first question; a dry blast from the Sahara, instinct with unheard whisperings of primeval creatures, is the sole

answer to the other. A few hours' ride from any coast-town will bring you to landscapes patriachs might have ploughed, and to burning sands where to this day a camel is your appropriate means of transport. The only specimens of humanity visible are the dark-browed descendants of Ishmael and Esau, or if any of the craftier Jacob's posterity be on the scene, it is on sufferance—the necessary but disliked purveyor of the Infidel's tea and cloth.

turbaned devotees pressing their brows upon the cold floor with a fervid *Allah*, all facing towards the holy city Mecca; these things may be seen and heard by the passing *giaour*. And at evening, when the sun's latest ray throws its rosy hue over all the fair town, and the *muedden's* voice breaks upon the calm air calling the Faithful to prayers, there arises from every tall towered mosque a sound of many voices which is full of weird melody. It is wafted to the ample-terraced roof whereon



ARM CHAIR IN BLACK WALNUT COVERED WITH RICH CUT VELVET OF 18TH CENTURY WORK.

It is not granted to Christians to desecrate by their presence any Mohammedan place of worship in this country. But the open doors of mosque and *sowiah* allow the curious to see something of the interior. The dimly-lighted square, surrounded by colonnades of chaste yet imposing outline; the tessellated ground-work; the central fountain, whose ceaseless jet trickles even as the sparkling waters of Zem-Zem; the crowd of *haik'd* and

we take the sunset stroll, and mingles with the pleasant voices of children at play on the housetops. It is the choicest hour of the whole twenty-four, and that harmonious murmur is very soothing to the nerves. "Come, good Fatima; cigarettes and a cup of Mocha! The day is over; long live the day."

I am writing these lines on board the steamship *Cynthia*, now lying at anchor a mile or two from the

port of Rabat. Rabat is only divided from the ancient town of Sallee by a nearly dried-up stream which here dribbles into the Atlantic, and the two towns, facing each other from the slopes of rival hills, form one of the most interesting studies on this coast. It is not very long ago since from this same river issued the famous rovers whose name was a terror to all the merchantmen within a few hundred miles, and whose ravages extended occasionally as far as Tunis and Tripoli. Their ill-omened craft were wont to sweep down on the unprotected villages of Southern Spain, and carry off all the pretty Christian maidens wherewith to fill the hareems of their piratical masters, and Christian slaves for every market in Morocco. Unlucky mariners becalmed within sight of this inhospitable shore learned to dread the dark galleys that as sure as death would be seen creeping from behind yonder rocky point. They were not very bloodthirsty, these Sallee pirates. They only used to kill those of their prisoners who were too old for service; the rest were sold into perpetual slavery. They never destroyed the ships that fell into their hands if they could help it—until the booty was fairly secured. I am told they used the celebrated Hassan tower as a look-out station, and it is quite ugly enough to have been built for their especial behoof. It is, to adopt the picturesque phraseology of Euclid, a rectangular figure with perpendicular sides, in the proportion of three or four to one of its base. Its bare walls are touched up with geometrical figures, and it contains, I believe, some interesting Arabic inscriptions. But what are these to us? We have been lying here since yesterday morning, unable to communicate with the shore. Across the mouth of the river runs a sandbank, which the heavy Atlantic swell is doing its very best to sweep away; but in the meantime it is not considered wholesome at all times for boats to put out to sea. We let go an anchor on arrival and signalled for lighters. No notice whatever was taken of our streaming ensigns, nor could we discover that a single inhabitant had turned out to have a look at the *vapor inglés*. The place seemed deserted. We were evidently at the mercy of some old scamp of a *kadi*, who peradventure was asleep, or on a journey, or in the country hunting the wild boar. Presently, however, at about four o'clock in the afternoon, a Moor appeared on the crest of the hill and sat down. Our worthy captain levelled a telescope in his direction; his features assumed an expression Mephistopheles would have envied. My opera glass revealed the cause of this sardonic relaxation. The elderly follower of Mohammed was calmly performing his evening devotions. Now, Rabat is one of the most important towns on the coast; her merchants carry on a direct trade with the great city Fez; her gardens of oranges and her scented lemon groves are the pride of all the country-side,—yet, under certain conditions of weather there is a difficulty in communicating with vessels in the roads, and the Oriental sentiment of *laissez faire* will infallibly prevent any steps being taken to

improve the sea-ports so long as this splendid country is misgoverned in accordance with a fatalistic creed. A break-water of the rudest kind would be sufficient to protect the landing of boats, for instance; but here and along the whole coast there is a barrier to progress which no arguments and no individual influence will be able to remove. As were our fathers in the past ages so are we—it is the will of God, *Alhamdu l'Allah*—and shall we now stoop to learn of the Nazarene?

Aha! These Moslems may fret us, but this voyage at least they will have to go without their Manchester cottons and their fragrant hyson. Steam is up, the anchor's weighed, and to-morrow we shall see Dar al Bayda!



HUNTER, AFTER THORWALDSEN. P. IPSEN, TERRA COTTA WORKS, COPENHAGEN.

DANISH TERRA COTTA.

MR. CHARLES BOUTELL, the accomplished antiquary and historian, a few years ago, in a notice on the Danish Art Galleries of Bond Street, drew attention to the remarkable progress Denmark was making in arts and art workmanship. He pointed out that our own manufactures were greatly influenced for good by the existence amongst us of a wide-spread delight in archæological inquiries and researches, from which our best productions received their happiest and most powerful impulse. "Foremost" he says, "in the ranks of the chronicles of the past, archæology is the master teacher for the present." Archæology reveals to us the wonders of both artistic and scientific culture that existed and prevailed in the midst of much that was barbarous and very rude; thus teaching us that the workers of far distant times, and among their number



DESIGN FOR VASE IN PORCELAIN GLASS IN TWO COLOURS.

our own predecessors in the occupancy of these then remote regions of the west and north, worked as well with head and heart as with hand, the head and heart element in their work having always the precedence. Archæology teaches us to follow their example in our own working, if we would have our works attain to excellence equal to theirs. Acting in accordance with this teaching, or the spirit of it at least, startling as it is in itself, and strange and severe it is in its rebuke of much in the pretensions of modern advancement, it has become an established and recognised usage faithfully to reproduce ancient and early types of ornament for modern requirements, and also to cause strictly modern works in both design and treatment to assimilate themselves to ancient and early models. We do not by any means mean to imply that we are to rest content with being mere reproducers and copyists, without cultivating the faculty of independent thought or action; far from this, the true function of archæology is to impress on the observant such an esteem and admiration for ancient and early workers as must inspire us eventually to secure for ourselves intrinsic qualities at least as estimable and admirable in their beauty and their nobleness, as those that adorn and dignify the most perfect of the productions of antiquity, and the best period of the *renaissance* with which we are—thankfully—becoming every year more and more familiar.

We have had occasion in our first volume to draw attention on more than one occasion to the splendid works in metal exhibited in the Danish Art Galleries of Bond Street. It is our happiness on the present occasion to point to the newly opened branch of the house of Ipsen of Copenhagen in the same street, for the sale of its now world-famed art pottery in terra cotta. These terra cotta works are strictly of a decorative character, modelled with scrupulous fidelity from well known examples of ancient art, as well as from designs of skilled workmen based upon archaic types; and we are happy to see amongst the specimens lately imported from the Copenhagen works, several accurate copies of the now popular Troad remains in baked earth brought to light by Dr. Schliemann, and exhibited at South Kensington.

The terra cotta clay of Denmark more closely resembles the ancient Samian ware than our own earth is capable of reproducing; it has the same soft and silky—if the expression may be allowed—appearance of famous antique works of the same character, and is, besides, more closely allied to ancient Etruscan work in colour, being paler and of a more delicate buff tint than any we have seen produced by our own potters, when reproducing the finest work of the kind. We noticed in this fine display several very small and highly finished specimens of terra cotta vases, which, minute as they are, retain all the sharpness and definition of the material, whilst the surface is smooth as a gem. The very beautiful vases and tazze of Copenhagen, produced in the

potteries of the widow P. Ipsen, are, as we have said, actual reproductions of famous Italo-Greek or Etruscan prototypes, or they follow in all their leading features the severe rules of their ancient classic models with a facility which leads one to suspect that race affinities have something to do with the special art talent so distinctly evidenced by the Scandinavian work-people, who now excel beyond all others in this branch of art after so wide an interval of time. We have been taught to regard all fictile works of art coming from Eastern Europe of very ancient date to have been the work of the Etruscans, just as the Pelasgians and the Phœnicians are accredited with the invention of other arts and industries, because, by adopting so remote and undefined a parentage, much trouble in research is saved, besides, the difficulty whenever it arises can be more readily disposed of by the introduction of names like these. The supreme excellence of the terra cotta clays of Italy and Greece had as much to do with the illustrious rank and ancient fame of the vases of antiquity as the art workmen who produced them, and it is mainly owing to the admirable materials so abundant in Denmark at the present day, that the taste of her artificers has been stimulated to so high a pitch of excellence. Who were the actual pre-historic Italian races who occupied the peninsula before they were driven from their homes by intruding colonists, we have no means of knowing; but that they were a branch of the Celtic family is abundantly proved by the pictorial illustrations they have represented so graphically upon their vases; remarkable alike for their grace and beauty of form, their mythic and shadowy historical pictures are the oldest pictorial records of humanity in Europe, and date from the tenth century before Christianity. Umbria was visited by Greeks about the period when the chiefs of Hellas were hammering at the gates of Troy, and before these warlike and restless invaders the Umbrians fled to the interior of Italy, or were exterminated. The Pelasgi, as the new comers were called, held sway in the land until the power of Rome was strong enough to assert itself, but in the mean time Greek art had engrafted itself on the more ancient stock, as the relics found in the tombs of Cumæ amply prove. Strong as the Pelasgi became in the land of their adoption, Pliny tells us that the Lydians from Lesser Asia, under Tyrrenus their leader, drove out the Pelasgi from their splendid homes and strongly fortified towers and walled towns, to occupy the land in their turn under the name of "Tyrrheni," or "Tuscans," or "Etruscans." These Lydian conquerors of the coast of Italy brought with them a great store of oriental knowledge gained in the East, and from their intercourse with the Assyrians, as well as the refining influence of Egyptian art they derived from associating with their old allies the Phœnicians, who were themselves a race of apt and ingenious copyists. The Tyrrheni had therefore no difficulty in assimilating the inventive excellencies of the Pelasgians,

who became their subjects or allies ; and having, as we are told, a genius keenly susceptible of culture, though un inventive to the same degree, they willingly naturalised the arts they found predominating. Again, having but a feeble mythology of their own, they the more readily adopted that of the Greeks, and thus their adoption of Pelasgic art, blended with Pelasgic mythology, soon fused the Lydian conquerors with their subject races, out of which confederation sprung the Etruscans, and, as a consequence, the peculiarly hybrid character of Etruscan art.

declare that they undoubtedly belonged to the Scandinavian races of Denmark, Sweden and Norway.

"Pure Greek art," says the authority we have already quoted, "such as it was when carried by the Pelasgi from Hellas into Italy, the mixed Etruscans cultivated and tinged with Phœnician influences, they made their own, equalling the Greek models so far as the archaic style pervaded."

The ancient love of the Etruscans for Greek culture, indeed, is strikingly manifested in the decorations of those Etruscan remains, concerning the origin of which no doubt or uncertainty can exist.



BAPTISMAL EWER IN SILVER-GILT. 16TH CENTURY WORK.

The Celtic aborigines, driven from the sea coast to the interior, met with still more cruel taskmasters coming overland from the far north, as there can be little doubt that the Gothic race which crossed the Apennines, and settled in the plains of Lombardy along the banks of the river Po, united with the coast dwellers in reducing the unfortunate Celts to a condition of degraded serfdom. Should these Goths—as they have been termed—since their first appearance, have come from the north-west, there may be something in the opinion of those who

The designs of these decorations, portrayed with much intelligence, convey the meaning with great spirit and refined taste, and display on the part of the artists a perfect acquaintance with Greek story, at the same time the Greek myths are found to be explained—probably for the community at large—in the original native language of the dominant Asiatic race ; and hence the repugnant genius of the two languages of the Pelasgi and Tyrrheni is sufficiently apparent in the strangely distorted forms the heroic names are constrained to assume. It

was in the fatal fight at Cumæ in the year B.C. 309, as Livy says, which "*fregit Etruscorum opes*," that the Etruscan period in history terminated.

Their works in terra cotta, after the lapse of centuries, have survived with a perfection and completeness which passes comprehension. Their numbers are countless: their unlimited scope in form and design excite our admiration and our envy for the priceless lessons they give to workers and artists in terra cotta throughout all time. Cases may arise, however, in which the modern potter may judiciously decline to produce mere servile imitations of even the noblest ancient models, since, for all desirable purposes, they may have long become obsolete; yet he never will fail to remember that, in the humblest as well as in the most important vases of the Greeks, he may find subjects for careful and thoughtful study; certain to learn from them by what means he may improve the practical application of his own art, without sacrificing its originality or perverting its usefulness. When they applied painting to their beautifully formed vases, the ancient artists did much more than increase their commercial value, and improve their appearance as objects of adornment or of daily use.

Their vases thus were unconsciously employed to transmit to distant ages the traditions of the ancient Greek and Etruscan schools of art; and they became an inexhaustible, as always a felicitously consistent source for illustrating the mythology, the manners, customs and literature of the Greece and Italy of antiquity.



EXAMPLES OF DANISH POTTERY.

GRANULATED GOLD GLASS.



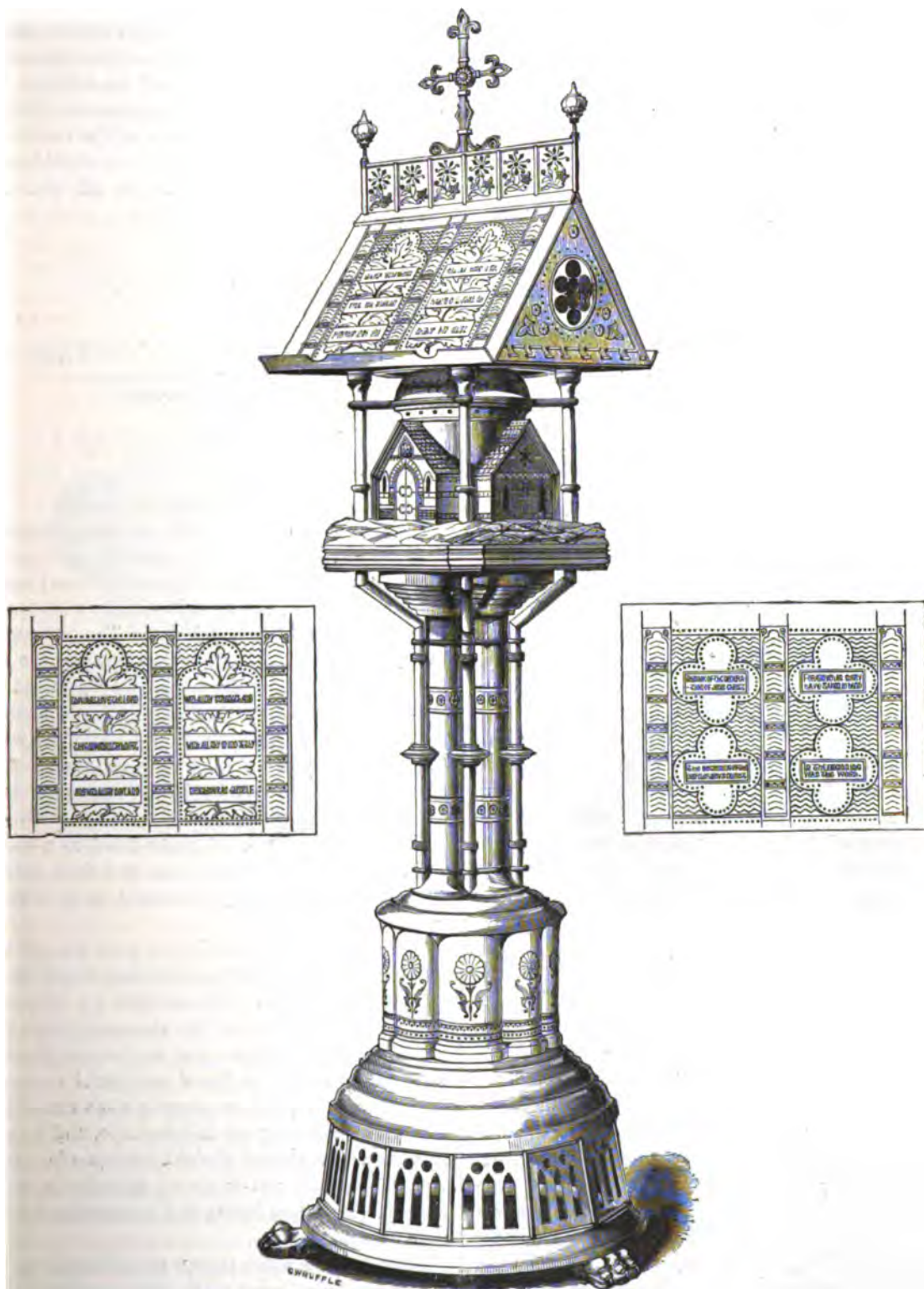
IT is with great pleasure that on this occasion we call our readers' attention to yet another advance in the manufacture of fine art, Decorative Glass; a branch of industry that has during the past few years made such rapid strides. At the present moment, when the advancement of the fine arts generally is no longer left to the fostering care of a few

enlightened princes, but has become a daily matter of interest to thousands of wealthy commoners of every nationality who have a love for the beautiful, we find it in many cases substituted in lieu of the precious metals, adorning the mansions and tables of all who have real taste, eclipsing by its brilliancy the fine old family plate handed down from generation to generation, and vying in elegance of design with the more modern productions of the silversmith's art.

To those who have not studied the subject carefully, it might appear at first glance that this immense improvement in the manufacture of glass could be claimed as fresh fruits of man's inventive genius, and that the nineteenth century is the era in which for the first time certain dull ingredients of this earth of ours have by mechanical skill been made to take a form hitherto unexcelled in brilliancy and pureness by any natural or manufactured substance. Such, however, is not the case, and it is indeed very improbable that we have even now attained the same degree of excellence possessed by the Greeks, and earlier still by the Egyptians, in this particular branch of manufacture.

Those who have had leisure to examine the displays made by the most famous of the numerous glass depots, that now form such an attraction to the lover of the beautiful, and exist in every quarter of our great metropolis, may have admired the novelty of the year 1877 in the form of iridescent glass; a substance which seems to have borrowed its hues from the rainbow, and, from the soft blending of its ever-changing colours, might lead one to believe that the hand of nature could alone have painted it. But whilst admitting the pleasing effect it produces, we will rest here and say nothing detracting from its material character, further than that those who have so successfully introduced it to the public, took advantage of a freak of manufacture which, when appearing in the crucible of the ordinary glass-blower, causes him infinite annoyance, but which, under their "so to speak" fostering care and education, has resulted in the production of the elegant ware now so much in fashion. New, however, it is not, and to prove so we have to go back to the times when ancient Greece and even Egypt were the cradles of art. Unfortunately, owing to the fragile qualities of glass, it is very seldom that we have an opportunity of judging how far these nations were advanced in the art; we read of the use of crystal goblets, and wonder if they are constructed of rock crystal or a manufactured substitute. It is very rarely that we come across a perfect specimen, and then for the most part only in the form of lachrymæ or tear bottles buried with the dead, and which, from their form, thickness, and place of deposit, have been enabled to escape the effects of time, and have survived even iron and bronze.

During the construction of the present railway from Piræus to Athens, it was the author's fortune to be present when the pickaxe of the modern excavator laid bare some ancient Greek tombs, whence he secured two



LECTERN DESIGNED BY E. J. TARVER, AND MANUFACTURED BY RICHARDSON, ELLSON, & CO.

specimens of these tear bottles, identical in character to the lately introduced iridescent glass, possessing the same blended colours, and only differing in that they appeared to be formed of successive layers of immeasurably thin glass. Here then we have the proof that in this case we have only recovered a lost art, an art which was learnt from the Egyptians, in whose country we also find specimens with the same characteristics, as well as others yet more interesting. We speak of a glass into whose manufacture the precious metals were introduced and so incorporated, that the lapse of untold ages has failed to tarnish the gold embodied within it. Few, indeed, are the specimens that have been handed down to us of this beautiful manufacture, but few and fragmentary as they are, they have sufficed to show us that we are probably still far behind these wonderful people who built the pyramids, and have led many an inquiring mind to endeavour to unravel the secret and reproduce this lost art. Lost to us till within a few months ago, when after many years of study and experiments, it was the fortune of a French gentleman (M. D'Hussey) to be able to present to the trustees of the British Museum a modern manufacture, an exact reproduction of the lost art, and upon the production of which they so far overstepped their general rule as to admit it within their walls, where specimens may now be seen in the Egyptian department, and for the explanation of which they have asked for several other specimens, in order to show the different manufacturing stages. No slight honour this, and it has only to be seen and made generally known to ensure the hearty approval of all who take a delight in art.

Produced in those elegant and quaint forms in which the Salviati Company have for so many years made us acquainted with the production of Murano, we have here an article excelling in regularity of form, pureness of metal, and brilliancy of colouring, the manufacture of modern Venice; whilst the amalgamation of the precious metals in such a manner that they are not liable to tarnish or discolour, presents an entirely new feature, and hitherto unobtainable. Attempts indeed have been made to do so by means of chemicals, which, however, admit of disintegration in time, and crests and monograms rapidly disappear from the surface of household glass altogether, or resolve themselves into black disfiguring splotches.

The process is patented, and being so protected, we can do the clever inventor no harm by stating that gold and platina is introduced in the form of thick leaf, amalgamated with the glass by means of a blow-pipe, and encrusted entirely in the vitreous substance so completely, that disintegration or discolouration becomes a practical impossibility, and so long as the fragile substance exists, so long will it retain both the colour of the metal and ground work. Amongst the numerous specimens of this elegant ware it has been our fortune to see, we will particularly mention a most elegant tazza, both in form and colour, the latter consisting of a pale blue ground granulated with platina; also pilgrim bottles

in antique ruby glass, granulated in gold, and encrusted with drops of different coloured glass representing jewels, the play of light through which baffles all description. A manufactory for the production of this and some other equally interesting branches of glass ware is now all but completed; and we trust that in the course of a few months the general public will be able to become perfectly acquainted with an invention which, of its class, may justly claim to be one of the most wonderful and interesting of the age, and we shall have much pleasure in showing specimens to all who may be interested therein.

INDUSTRIAL ART IN AUSTRALIA.

ART IN VICTORIA.

NOT much can be said of Pre-historic Art beside the charming banks of the Yarra Yarra.

For thousands of years the aborigines and kangaroos had the land to themselves. Both parties had their own skins, and were content with them; only under the pressure of unwonted cold did the superior animal deign to wear an additional skin. The ceramic art was not required. Cooking was performed in the simplest fashion; the root, or the beast, with its jacket on, was thrown upon the fire. The fire itself was made by the friction of a couple of sticks. As no ground was tilled, and no house was reared, tools were unnecessary. A pointed stick, hardened in the fire, served to spear the game. A knobbed stick was handy to fetch down a bird, or break a head. A stone, fitted in a cleft stick, and bound with sinew and gum, was their only instrument. Industrial Art was, therefore, in its lowest stage before the whites came.

The whites themselves, in the early days of Victoria, found, like the blackfellows, that they could do without many things. A bush hut displayed no decorative art. A beaten clay floor served for encaustic tiles. Painters, paper-hangers, bricklayers, and any but rough carpenters, were out of court. A barrel was useful to hold water brought from a pond or stream; when out of joint for that work, by cutting out half one side, and by putting a seat therein, a capital arm-chair was made. Industrial Art subsequently put a bit of chintz over the barrel fauteuil. Furniture inside and implements outside were rude enough.

After a while, when stumps were cleared, or the first clippings of wool were sold, a floor was laid, the walls were lined, and a calico ceiling was stretched. It was then that a stray picture got into sight, to the delight of children, and the wonderment of visitors.

The great era of art development in Victoria followed

the gold discovery of 1851, and the London Exhibition of that year. The first event brought wealth, and the other showed how to use it. A third circumstance connected the gold finding with the influence of the Exhibition. This was the sudden and enormous emigration, during 1852 and 1853, of educated and even cultured young men, married and single. They had breathed the atmosphere of Industrial Art in 1851, and caught a share of that wonderful enthusiasm for art excited by Albert the Good.

But these, for a time, laid aside æsthetic ideas, lived in a comfortless tent, delved in dirt, fried chops, baked

The PUBLIC LIBRARY buildings here cost above 120,000*l*. The style is Romano-Corinthian. A handsome porch, adorning the centre, has columns of thirty feet raised on pedestals of six and a half. The entrance hall is fifty by fifty feet. The reading room upstairs is 240 feet long, fifty broad, and thirty high. The books are arranged in departments, and are accessible to every reader, for whose convenience handsome tables and chairs are provided. The room is open to all comers. It is pleasant to record that cases of injury to, or abstraction of, any books have been, relatively to visitors, far fewer than in the free libraries of Europe. In point



FAIENCE COPIED FROM ORIENTAL WORK, WITH DECORATED WATER-BOTTLE. DESIGNED BY T. DECK OF PARIS.

bread in ashes, and slept on a bark bedstead. When nuggets came, and trade grew, the old tastes revived. Towns arose. Sons of English gentlemen, though suddenly converted into farmers, store-keepers, carriers, or artisans, were not slow to develop ideas of progress in all ways. The tone of Victorian society was, in point of culture, head and shoulders above that of other places, and directly influenced the rulers of the state.

As early as 1853 the colonial Government took the initiative of progress. In spite of unprecedented social derangements, it was resolved to found the University of Melbourne and the Public Library. With the latter were afterwards allied the Technological Museum, the Gallery of Art, School of Design, etc. These inaugurated the reign of Industrial Art in Victoria.

of number of volumes, this public library of the new and democratic colony of Victoria is only exceeded by one town of Germany, one of France, and two towns of Britain, outside of capitals. With the exception of comparatively insignificant donations, this vast and most judiciously selected collection has been paid for by the Legislature.

The Fine Arts department proper followed in the wake of the library, and was incorporated with it under eighteen trustees. To the Chief Justice, Sir Redmond Barry, and to Judge Bindon, are the colonists most indebted for this exposition.

The GALLERY OF ART dates from 1863, when commissioners were appointed, who requested Sir Charles Eastlake to select pictures for them. These were, at

first, exposed in the library. Among the earliest purchased were Baxter's 'Rose of England,' Cope's 'Pilgrim Fathers,' Chevalier's 'Buffalo Ranges' (Victoria), Folingsby's 'Bunyan in Prison,' Vibert's 'French Artists,' Guérard's 'Mount Kosciusko,' Bedford's 'La Belle Yseult,' Koller's 'Départ du Fiancé,' Goodall's 'Rachel at the Well,' Lee's 'River Mill,' Weber's 'First Snow,' Webb's 'View of Rotterdam,' and Long's 'Dancing Girl.' At present, the most popular with young colonists is Layraud's large picture, twenty-one feet by twelve, representing the capture by Italian brigands of a couple of English travellers, apparently out on their bridal tour. Murillo, Opie, Hunt, Herring, Herdmann, Hillemacher, Mogford, Buvelot, and Reynolds are represented there.

The Gallery is only lighted on certain evenings, but the library is open till ten at night. The Fine Arts show includes pictures, statues, casts, busts, friezes, ethnotypical objects, coins, medals, medallions, seals, illustrations of ceramic art, workings in glass and metal, designs and drawings, engravings, lithographs, autotypes, photographs, etc. The sculpture gallery contains casts of the most celebrated statues in the museums of Europe, with casts of busts and friezes, and diptychs from the Arundel Society. The publications of this society are to be seen there.

The SCHOOL OF PAINTING, principally attended by ladies, was established in 1870. Mr. Eugene von Guérard, our colonial artist, is the instructor. In one of his reports he says that, though many of his pupils may fail to become artists, "yet the benefit derived from their studies in a better taste, and in a more correct appreciation in objects of art, etc., will be a gain in education for the whole community." He adds, "it appears from the daily increasing number of visitors to the gallery, that the public taste for good works of art is very marked, especially in the lower classes." He correctly estimates the object of the commissioners to be the "fostering a good taste in art." His faith in the prospect for Industrial Art in Australia is strong, when reporting "the love of Fine Arts in our colonial population compares most favourably with any of the countries I know of, justifying the amount of the public money expended."

As singing and drawing are taught by professional gentlemen in the ordinary free schools of Melbourne, Geelong, etc., the love of fine arts cannot fail to be developed.

The TECHNOLOGICAL MUSEUM of Melbourne, in connection with the Public Library premises, is in a splendid room, 220 feet long, eighty-two broad, and forty-eight high. Its two wings, each 220 feet in length, are devoted to painting and sculpture. It has about 20,000 objects of practical utility. There is a good phytological collection of seeds, vegetable food, fibres, and vegetable products in manufactures. An official report states, "the collection received from England, numbering several hundred specimens, has not been placed in the museum, as in many instances wrong names were detected."

Bee culture and fruit culture are there illustrated. The agriculture of all countries may be seen in implements as well as products. The animal section is highly interesting. Building materials, pottery, and other specimens of useful art are exhibited. The collection of models and machinery, especially as applicable to the mining and town industries of the colony, is of great practical value. The visitor notes the raw material, and the process of conversion into an article. The foreign specimens of art and manufacture serve at once as a means of comparison and a stimulus for exertion. Mr. Urich's collection of minerals can be equalled by very few in Europe. To Mr. J. Cosmo Newbery is the general superintendence of the museum confided, and enthusiastically conducted.

There are classes for chemistry, metallurgy, assaying, and telegraphy. In the laboratory are tables for twenty-five students. There are evening lectures to working-men, delivered by those of scientific repute; as Professor M'Coy, and the colonial astronomer, Mr. R. E. J. Ellery.

The SCHOOL OF DESIGN is a success, and must exert a great influence upon the future of colonial industrial art. The pupils are mostly engaged in handicraft, and go there to become better painters, decorators, moulders, cabinet-makers, engravers, engineers, carvers, etc. Out of forty-seven female pupils, however, eighteen are engaged in tuition. Mr. Clark, the first appointed conductor of the school, expressed his opinion "that a decorator or designer shall undergo precisely the same course of teaching as an artist proper does." Regular examinations take place, and prizes are awarded.

Melbourne does not keep all the good things to itself. Geelong, Ballarat, Sandhurst, and over a couple of dozen other towns are favoured with schools of design; while the numerous free libraries of the interior are aided by lending libraries from the parent Melbourne Library.

The results of this governmental energy and liberality upon Industrial Art in the colony may be hereafter detailed.



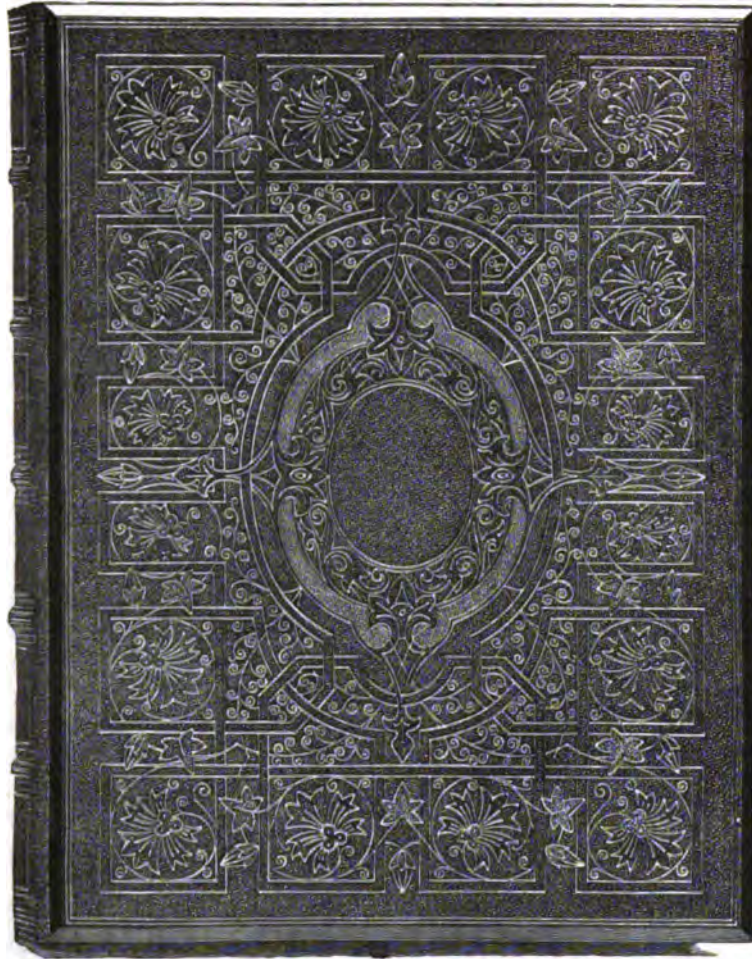
of the commission ; the list of the commission contains besides, the names of many Italians illustrious in the various professions in the arts and industries of their country.

America sends 619 applications for space, 307 are credited to the State of New York, 111 to Pennsylvania, 47 to Massachusetts, another hundred in nearly equal proportions to New Jersey, Ohio, Connecticut, and Illinois, and the remainder to fifteen other States, and the District of Columbia. The space applied for is at least five times as much as has been allotted, and pro-

In spite of the gigantic proportions of the building in the Champ de Mars, which covers a superficial area of 240,000 mètres, the demand for space has so far exceeded the supply that an addition of 40,000 mètres has been judged necessary.

The supplementary expenses involved in the construction of the additional building required will amount, according to the present estimate, to the large sum of 9,482,000 francs.

The construction of the Palace on the Trocadéro will also necessitate an expenditure of money over and above



ALBUM COVER WITH METAL CLASP IN LEATHER MOSAIC.

bably three times as much as can be obtained, though there may be a separate building for machinery. A glance at the classification of the applications will show that they are very varied. For musical instruments, there are 16 applications; photographic materials the same number; clothing, 15; mining and metallurgy, 42; chemical and pharmaceutical products, 38; leather and skins, 28; cotton, thread, and fabrics, 27; machines in general, 54; machine tools, 22; carriages and wheelwright's work, 20. Four manufacturers of silk, and seven of jewellery, or dealers in precious stones. Clocks and watches are lightly represented.

the original estimate. The city of Paris is prepared to furnish 3,000,000 francs towards meeting this large and unexpected increase of expenditure.

A special division is to be devoted to electricity, so that the various systems of electric lighting may be tested comparatively. The electric light question continues to excite much interest at Paris. The Northern of France and the Paris, Lyons, and Mediterranean Railway Company are each experimenting upon the subject.

Coal from the island of Formosa, from mines worked both by Chinese from the mainland and Europeans, is to be exhibited.

ponderous disk of concentric mirrors can be shifted to any position and flexed to any angle with perfect ease, by means of the simplest mechanical appliances.

The sitter is placed at a proper distance, and the lights and shades—which are simply admirable—illumine the head sufficiently to bring out all the marked characteristics of the features; an ordinary photographic lens, but of exceedingly fine quality, is placed in the usual position, and in about seven seconds the first operation of photographing is completed. It is possible for an intending client to call at Regent Street, of an evening, in full opera or ball costume, on the way to theatre or evening party, and during the same evening to receive copies of the finished photograph.

There is a refinement in the mode of treatment we have rarely seen excelled by sunlight photographs, and a marked improvement in the sharpness and clearness of the skin texture which leaves nothing to be desired. The rapid action of the lens employed secures for the sitter a perfect freedom from that constrained look so often seen in ordinary photographs, inseparable from the tedium and nervousness induced by the somewhat uncertain action of sunlight, and hence a freedom from the mere chart-like expressionless look to which we have alluded, and which photographs mostly resemble. Old people and young children, by Mr. Vanderweyde's process of photography, retain that peculiar charm of their features, which consists of a composed dignity without stiffness, we prize so much as an attribute of respected old age, or that buoyant vivacity we look for in the pictures of our little ones. To have a photograph taken by a skilled artist who understands the requirements of portraiture is a matter of the highest consideration; and to have it in one's power to go at any hour of the day or evening most convenient to ourselves, to have an agreeable likeness taken, are, in themselves, very important additions to the many wonders of the metropolis.

ANCIENT CEMENT.

THE history of the fabrication of cements, like that of many other arts, reaches so far back into the early ages that it is impossible to ascertain with much exactness when it was first skilfully practised, says the *Builder's Weekly Reporter*. The ancient Egyptians, 4,000 years ago, possessed the knowledge not only of making building mortar, but also of mixing earthy materials which would set and harden under water. In the construction of the pyramid of Cheops, a cement, made of Nile mud and gypsum, is believed to have been used. Many of their sculptures in bas-relief were executed in cement, and examples are still preserved of Egyptian ceilings, in painted stucco, of a date much earlier than Solomon's Temple. The pictures in relief

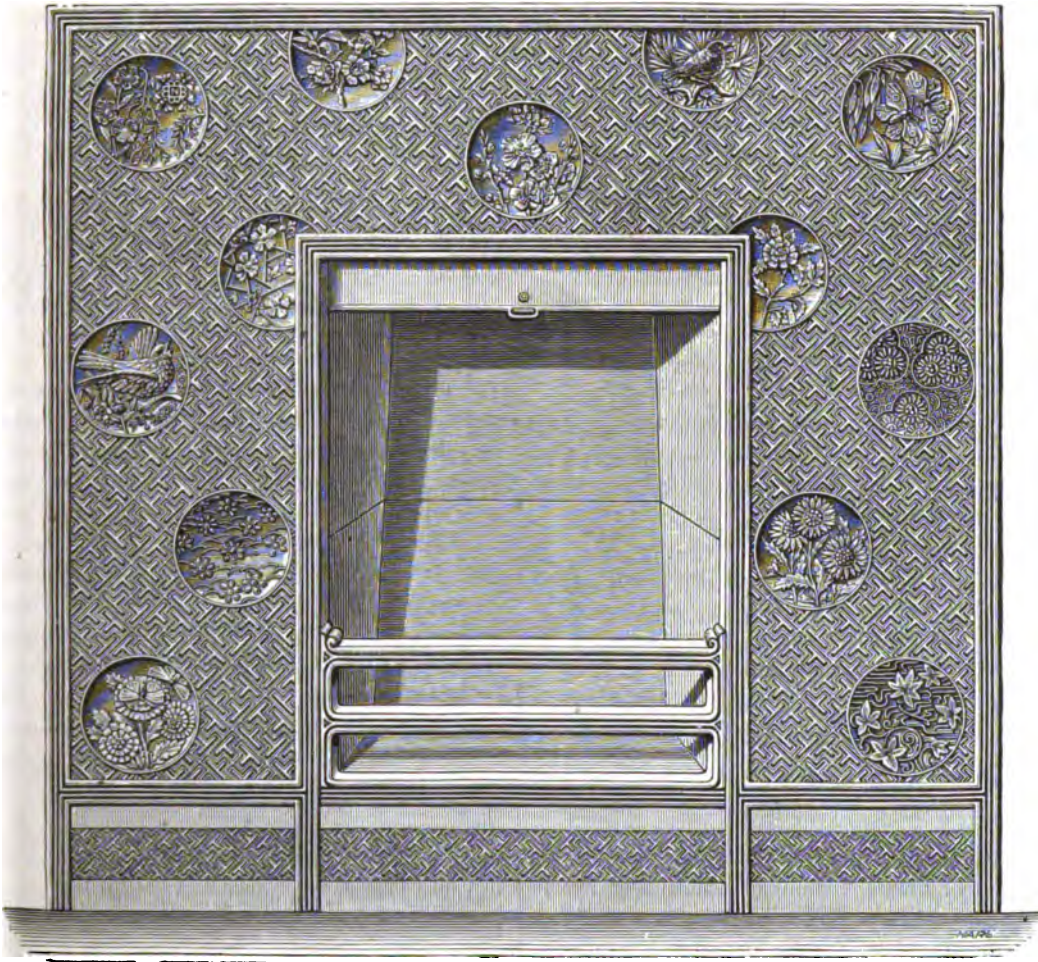
which have been discovered at Nineveh were mostly executed in alabaster; but the Babylonians, not having such materials, covered their bricks with plaster, on which they made their designs. It was upon "the plaster of the wall" of Belshazzar's palace that the mystic hand traced the fatal letters. Under Nebuchadnezzar, Babylon became the first city in the world, and mortars and cements of various kinds, of a bituminous and earthy character, were used in enormous quantities in the construction of edifices and public works. The Greeks gave the subject much intelligent attention, as is evidenced by the chemical composition and state of preservation of mortars and cements which have been found in their ancient temples, and it is a matter of history that, in the early development of the architectural and engineering arts by the Romans, the Greeks were often consulted by them. The Romans, however, attained to the greatest distinction for the magnitude and durability of their works. They prepared an excellent cement for hydraulic purposes, which they used in making concrete with broken stones for the construction of various piers and harbours in the Mediterranean. They early became acquainted with the properties of pozzolana, which, mixed with burned lime, gave them a hydraulic cement that can scarcely be said to have been since excelled. The mole or breakwater of Pozzuoli is one of the monuments of the durability of their hydraulic structures. It was composed of twenty-four arches, sustained upon piers, built of brick faced with stone, and held together with cement made of pozzolana and lime. Thirteen of the piers are still above water, although they were built more than 1,800 years ago. The arched construction was for the purpose of preventing a collection of sand behind the mole. Vitruvius says: "There is found in the neighbourhood of Baïæ and the municipal lands lying at the foot of Vesuvius a kind of powder which produces admirable effects; when mixed with lime and small stones it has not only the advantage of giving great solidity to common buildings, but possesses the further property of forming masses of masonry which harden under water." Cements may be divided into those which are chemical and those which are mechanical, or into the stony and the resinous and glutinous. Common building mortar is made of lime and sand. Many kinds of limestones contain carbonate of magnesia as well as carbonate of lime, and are called dolomitic limestones. When the proportion of carbonate of magnesia is forty per cent., the stone is called dolomite, and has been pronounced unfit for making building mortar. It does not become so hot in slaking nor set so soon as pure lime, but those who use it assert that in time it becomes harder. Some of the best lime in America is made from stone obtained along the Hudson river, much of which is almost pure dolomite.

Notwithstanding the advantages which science gives us, we seem not to have advanced much in perfecting either bricks or cement. We may equal the ancients, but it is doubtful if we excel them.

ECONOMY OF FUEL.

EVERY effort made by the press and the more demonstrative section of our fellow-sufferers to bate the price of coals has failed up to the present in securing that desirable object. In vain the cost of the mineral

not careful, we are said to send some ninety parts out of every hundred of unconsumed fuel, with the heat they are capable of imparting, still undeveloped in the shape of smoke up the chimney, or we send from the ill-contrived fire-place we are accustomed to, the disintegrated particles of coal-ash broad-cast over our carpets and furniture. By using one of Barnard, Bishop and Barnards' economical grates—which will be, thanks to their great artistic



THE ECONOMIC FIRE GRATE, WITH BRASS ENRICHMENTS. BY BARNARD, BISHOP, AND BARNARDS, NORFOLK IRON WORKS, NORWICH.

at the pit's mouth has been quoted in the market lists as most reasonable, the cost of carriage has been estimated more or less accurately, and still coals are retailed at famine prices; it behoves us then to look to our fire-places, where this precious material is submitted to the process of combustion, so that we may obtain the very highest percentage of heat from every pound ignited. If we are

skill, a feature of great attractiveness in our room—we, for the future, may count on securing greater heat, especially near the ground, than by any other open fire-place at present in use; we save our coals, and by means of the very simplest arrangement for producing heat, we get rid of damp walls and musty carpets in our houses.



NOTES ON THE PARIS EXHIBITION OF 1878.

PORTUGAL will be represented at the Paris Exhibition by many magnificent works. The position assigned to the Portuguese exhibitors in the Champ de Mars is the first to attract the attention of the public amongst the places reserved for foreign countries, nearest to the approach from the École Militaire; and it was a clever idea to place this country's products next to those of Tunis, which we shall mention in turn.

Then come Morocco, Siam, etc., the arcades and architectural decorations of each harmonizing well with each other, and producing the finest effect imaginable. Already a typical façade has been completed, having for its *motif* the production of a cloister copied from the famous structure at Belem. This cloister has been designed and carried out under the able and skilful supervision of the architect, M. Léon Pascal, to whom has been confided this interesting section of the building.

The second arcade is a faithful reproduction of one of the arcades of the grand cloister of the convent of Batalha. This architectural contribution is sure to attract much attention; its details are of marvellous beauty and completeness.

The next arcade is more diverse in its composition, being composed of divers portions of well-known Portuguese edifices admirably thrown together. The execution of the work contributing to the decoration of the interior of these arcades will furnish many valuable suggestions to decorative artists, the groundwork of the whole being generally composed of plaster in raised surfaces, and *carton pierre* and plaster associated with panels of wood. We hope to be able in future numbers to give examples of these fine examples of Portuguese art.

An enterprising firm at Marseilles has offered to place at the disposal of the Exhibition authorities a garden of bamboos planted in the form of an alley or avenue of some hundred yards in length. It is feared that this offer cannot be accepted, as such a share can hardly be devoted to the purpose, without taking from the general effect of the Trocadero. But it is hoped that the administration will be able to utilise the plants by forming them in groups, which cannot fail to produce the finest effects, if properly arranged, which they are sure to be.

Another offer, coming from Belgium, proposes to place an immense parterre of rare flowering plants beneath the central dome of the grand vestibule of the Champ de Mars, on the side of the Pont d'Iéna. This spontaneous offer has been unconditionally accepted.

The requirements of the exhibitors of plants for the parks and gardens of the Exhibition are so numerous, that the Minister of Agriculture contemplates being obliged to rent large spaces in the immediate vicinity of the building, where these floral collections can be carefully stored in reserve, under careful cultivation, until such time as they may be required for display in more prominent positions.

Already a contingent of Chinese workmen have appeared on the scene of the Exhibition. A native architect and eighteen skilled Celestials have now commenced their labours; they are at present engaged in erecting a kiosque from designs, and with materials brought by the government from China for this special purpose.

The Morocco workmen are intent upon the completion of a pavilion they are constructing on the principles of Moorish art.



AUMONIER'S FLOCK PAPER.

[SECOND NOTICE.]

SINCE our former notice of the excellent form of newly-invented paper-hangings produced by Messrs. William Wollams and Co., of High Street, Manchester Square (p. 16, Vol. II.), we have had prepared

the material is rendered permanent by a coating of oil paint, which can be treated in such a manner as to have a flat or unglazed surface, or it may be highly varnished, in order to secure the material of which it is composed from damp, or from the action of soap and water, in places where the occasional use of soap and water applied to the surface is absolutely necessary for convenience and health. We can boast, therefore, of having painted flock paper, or varnished flock, without the intervention



DESIGN FOR NEW RAISED FLOCK PAPER-HANGING, INVENTED BY WM. WOLLAMS AND CO., HIGH STREET, MANCHESTER SQUARE.

an engraving of one of the designs of the flock patterns in high relief, which strikes us as being of unusually high merit. The great advantage of this sharply defined pattern, from an artistic point of view, consists in the admirable effects of high light and deep shade it produces, in the play of various lights in different parts of a chamber; the same effects, in fact, which are obtained by the wood-carver, but in a material so plastic that it can be applied to any surface. The papers specially prepared for the decoration of ship cabins are peculiarly interesting, since

of paint, and an unpainted but highly finished flock in relief, either in two delicate tints, or resplendent in gold and many colours, without the woolly surface of the older forms of flock, which had the additional disadvantage of being less sharp in outline, and of a very much lower elevation from the surface upon which it rested, defects which were obvious and apparently insurmountable, until the enterprising firm were successful in completing the details of their present highly important improvements.

THE AMERICAN ORGAN.

THE illustration we publish in this number of the American Organ exhibits the instrument as we have viewed and examined it, at the establishment of Messrs. Metzler and Co., music and musical instrument sellers, Great Marlborough Street.

There are, however, two kinds of this organ, the different qualities of which we shall endeavour to describe.

One kind, which possesses not only two manuals but pedals, after the manner of the ordinary type of church organ, seems to be designed to fill the place of the somewhat cumbrous instrument which, as we find in many churches, is too often confined in a space far too limited for the proper development of its tone.

The other kind is somewhat similar to a harmonium, and is destined in all probability to supplant that instrument in the drawing-room, both as a solo instrument and as affording a charming combination with the pianoforte, there being in existence many arrangements of pieces in various styles of composition for these two instruments.

The former kind of American Organ shall receive our attention first.

It is a question if anything in its favour can be advanced more calculated to promote its value, than to say that the quality of its tone is a more excellent imitation of that of a fine organ than that of any instrument of this kind we have yet seen. There is a sonorous solidity about the timbre, which reminds one of some of the best organs to be found in churches, the work of experienced builders of a past age, mellowed by time.

A richness is also discernible to all appearance quite out of proportion with the smallness of the apparent means of producing the sounds. How far the body and weight of this tone is capable of carrying itself in so large a building as a church, it is of course impossible for us to say; but if an organ of the usual type be not available, it is obvious that due judgment would select the very best substitute, and this, as it appears to us, the American organ undoubtedly is.

There is further to be urged the advantage procurable, especially in a small church, of an instrument of sufficient power for all absolutely necessary purposes, and contained in a bulk considerably less than that of a grand pianoforte.

Another advantage of this organ is, that any class of music, from the severe sacred style to the lightest operatic music, may be played with perfect facility—the quality of music performed, however, being of necessity adapted by the performer's judgment to the building in which it is to be heard.

The touch of these organs of both kinds is so light and free, that it is certain that the most perfect "technique"

of a pianoforte-player would not suffer in the least from any amount of intimacy with the American Organ. It is well known amongst musicians that the clumsiness of the touch of organs of the ordinary class, and the absolutely opposite treatment the respective keyboards of the organ and pianoforte require, has long been a reason why pianists of importance have shunned contact with the organ as far as possible. In the case of the instruments under notice, this objection is effectually removed.

Speaking more particularly to organists, we can highly recommend the American Organ of this kind, not only as an excellent substitute for a regular organ for all purposes of study, but also as an instrument from which the intending organist can proceed to an organ of any size, with every assured advantage from his practice on this instrument clearly realisable.

The smaller kind, without pedals, is not destitute of advantages far above those found in an ordinary harmonium. The tone is as fine, and perhaps more varied, than that of the larger instrument with pedals; it is not so ponderous, but possesses greater variety, and is in every way more suitable for a room in a house, or an apartment where many persons assemble for musical purposes.

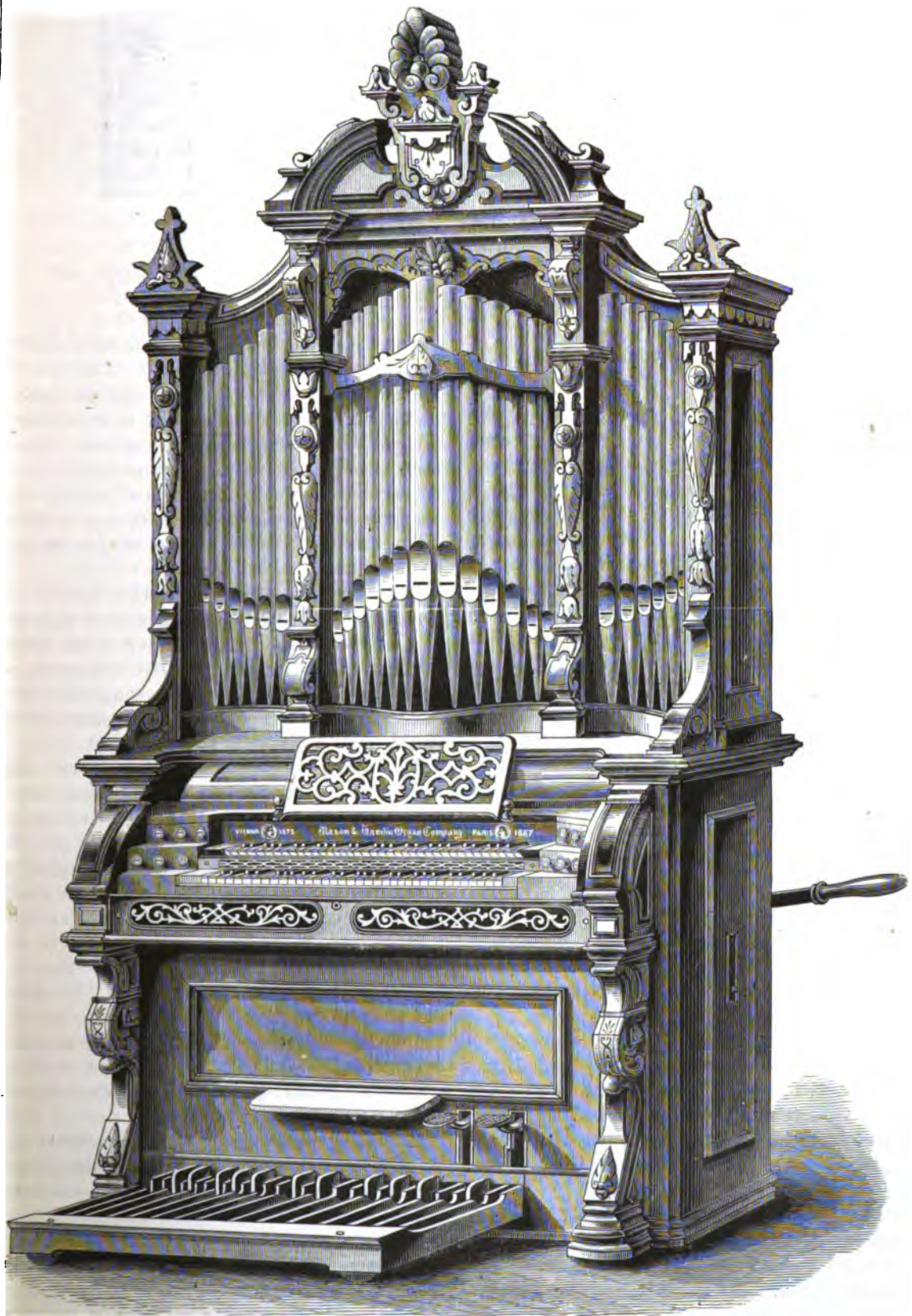
Either kind of the American Organ would be found of great use, where there was no ordinary organ, where oratorios are accustomed to be performed, with small band and chorus, in comparatively small concert rooms—the one with pedals, however, being obviously preferable, on account of the weight contained in the bass portion of the instrument.

In the smaller organ a very fine crescendo is attainable by what is termed a "knee-swell," a contrivance by which the performer may increase the power from *p.* to *ff.* by the easy use of his knees against a kind of flap, placed on each side, underneath the keyboards. Both organs are fitted with an independent bellows handle, to be blown by an attendant, and likewise with the ordinary means of inflation, as in the harmonium, under the control of the performer himself.

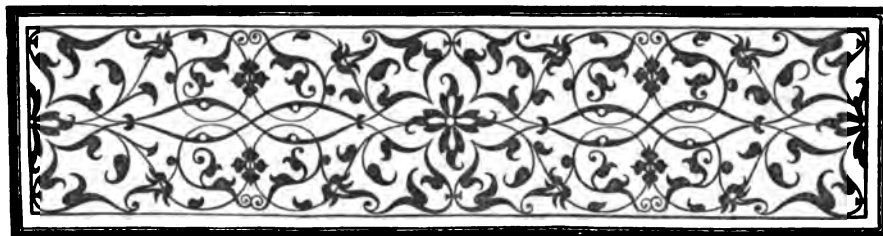
In these instruments is found one very substantial superiority over the regular organ, which is, that *tuning* is a thing almost unnecessary, except at very long periods. Cleaning once a year or so will suffice, in the hands of a properly qualified person, to serve all the necessary purposes of tuning.

Varieties, both in quality of tone and extent of capabilities, is, of course, with the American Organ as with most other instruments of the kind, a question of price.





METZLER'S CHAMBER ORGAN WITH TWO MANUALS.



REVIEWS.

The Art of Beauty. By MRS. H. R. HAWEIS. Chatto and Windus. 1878.

AT a time like the present, when Adrianople fills every Englishman's thoughts with a peculiar interest, the charming account of its institutions preserved to us in the letters of that very talented woman, the Lady Mary Wortley, should be read by every one who cares to learn something of the inner life and habits of the much discredited Turk. Amongst the thousand and one facts collected by the fair traveller in 1718, which went far to dispel the foolish illusions of the older travellers, the condition of happy freedom she insists that the Turkish women enjoy, compared with the ladies of other lands, is not the least remarkable amongst the facts she takes occasion to notice. Many passages in this pretty book by Mrs. Haweis attest the pleasant kinship of thinking women at all times, who undertake to hold the mirror up. The reflections in her recently published book on our social surroundings are strangely in accord with the opinions of the old and equally fearless writer to whom we refer, and by way of examples of similarity of style and habit of thought, we give a quotation from each in support of what we advance.

The authoress of the letters from abroad to friends at home on her visit to the Adrianople Bagnio, or Turkish bath, which has since become an institution amongst ourselves, states that "being in her travelling habit, which was an ordinary riding-dress, certainly appeared very extraordinary to the Turkish women. Yet there was not one of them that showed the least surprise or impertinent curiosity, but received me with all the obliging civility possible. I know no European court where the ladies would have behaved themselves in so polite a manner to such a stranger. I believe, upon the whole, there were two hundred women, and yet none of those disdainful smiles and satirical whispers, that never fail in our assemblies when anybody appears that is not dressed exactly in the fashion. The first sofas were covered with cushions and rich carpets, on which sat the ladies; and on the second their slaves, behind them, but without any distinction of rank by their dress, all being in the state of

nature, that is, in plain English, stark naked, without any beauty or defect concealed. Yet there was not the least wanton smile or immodest gesture amongst them. They walked and moved with the same majestic grace which Milton describes our General Mother with. There were many amongst them as exactly proportioned as ever any goddess was drawn by the pencil of a Guido or Titian, and most of their skins shiningly white, only adorned by their beautiful hair, divided into many tresses, hanging on their shoulders, braided either with pearl or ribbon, perfectly representing the figures of the Graces." "I was here convinced," says this amiable writer, "of the truth of a reflection I have often made, that if it were the fashion to go naked, the face would be hardly observed. I perceived that the ladies of the most delicate skins and finest shapes had the greatest share of my admiration, though their faces were sometimes less beautiful than those of their companions. They fain would have undressed me for the bath; I excused myself with some difficulty. They being however all so earnest in persuading me, I was at last forced to open my shirt and show them my stays, which satisfied them very well; for I saw they believed I was locked up in a machine, and that it was not in my power to open it, which contrivance they attributed to my husband."

Turning from this curious subject to the pages of Mrs. Haweis, we find in the chapter entitled "The Moralities of Dress," "laying down a few simple laws about the right and wrong—call it morality if you will—of dress," "I notice first, the morality of what we wear, which includes the questions of decency and indecency in dress; secondly, the morality of how we wear it, which is quite another matter, simply affecting ourselves and not the garment; and then there is, thirdly, the independent morality of the fashion in itself. Decency in dress is a difficult question, and one too lengthy and involved to discuss fully here. We need only give a few examples which may suggest more to thinking minds. The human body uncovered is not necessarily a shocking thing. There is nothing wrong or improper in that which is made in God's own image, and which is justly held to be the highest type of beauty in creation. And at a time

when beauty for its own sake was intensely appreciated, when it was cultivated with something of a religious enthusiasm, when the mother longed for her child to be beautiful, because beauty was felt to be divine, at such a time, in the fair warm climate of Greece and Italy, it was hardly thought needful to veil the body. The Greeks were proud of their beautiful bodies, as we are of a beautiful face, and a bare leg was no more to them than a bare arm is to us; and the sexes mingled in free and honest companionship, clad only in a thin stola, children

of all feminine costumes, are often held up as a type of indelicate dress; but in many respects our own fashions are open to juster criticism, when they seem to admit an impropriety by displaying a part only, just enough to hint the rest, as though conscious of something wrong. This is far worse than the entire expression of the form, where use and artistic appreciation, or simplicity of mind, have divested it of all exclusively evil associations." Moore it will be recollected has expressed the same ideas in the charming verses—



GARNETS SET WITH OTHER JEWELS FOR BROOCH AND EARRINGS. BY GOLDSCHMIDT, OF PRAGUE.

being devoid even of that. But what was harmless in the early Greeks would be impossible in nations who have lost to a great extent the simple instinct of natural beauty, whilst they have grown abnormally self conscious and reflective. There are tribes in the East, of no mean virtue (acting up to their lights), who consider the exposure of the face, or their identity, indelicate, but the rest of the body, wherein every body is more or less alike, may "go bare, go bare." The Turkish women in their loose trousers, perhaps the most modest and sensible

"Lesbia wears a robe of gold,
But all so close the nymph hath lac'd it,
Not a charm of Beauty's mould
Presumes to stay where nature placed it!
Oh! my Nora's gown for me,
That floats, as wild as mountain breezes,
Leaving every beauty free,
To sink or swell as heaven pleases.
Yes, my Nora Creena dear!
My simple, graceful Nora Creena!
Nature's dress is loveliness,
The dress you wear, my Nora Creena!"

But returning from this excusable digression, we find Mrs. Haweis maintaining that "it is not 'wicked' to take pains with oneself." (We deny that the influence of the Huguenot migration had a depressing effect on either household art or personal decoration, as the writer elsewhere seems to imply.) "In the present day our altered system of education and an improved conception of woman's capacities may have a little blinded us; we have begun to think of the mind almost to the exclusion of the body. It is perhaps time to notice that the new views, whilst pointing to one truth, are in danger of eclipsing another; not, as some thoughtless people believe, that mental culture can ever harm a woman, or do aught but confer an added grace, but that the exclusive culture of one good thing involves a deplorable loss, whilst two good things do but enhance each other's lustre. However important the mind may be in fitting woman for her place in the world, either individually or as the companion of man, the body is hardly less important, and after all, the old fashioned notion that a woman's first duty is to be beautiful, is justified by the utter impossibility of stamping it out."

It is in this friendly spirit that our authoress approaches her subject, and in a series of short chapters carries us over a very wide field of subjects, having beauty of some special kind for the *motif* of each; the Greek idea which entered into their religious cultus expressed in the phrase *καλὸν καὶ ἀγαθόν* embodies the thought of the visible sign of an inward grace, and an expression of the Divine good-will, and Mrs. Haweis concludes her introductory chapter by asking: "Is it not then a kind of duty to make life beautiful—to disguise deformity, to provide by care and forethought for others a pleasure which costs so little and brings in so much even to the giver, that one is tempted at times to fancy vanity itself but the abuse or exaggeration of a natural and noble quality, since it seeks, in the pride of beauty, a possession which tends to refine and elevate the mind, and increase the sum of human happiness in a number of direct and indirect ways."

The book, a neat quarto, is copiously illustrated by the writer, who has spared no pains in selecting works of art of a refined character, and in embodying her own impressions with a facile pencil, which incontestably proves her to be a consummate artist and keen observer.

NEW INVENTIONS.

IT has often been the subject of regret in the musical world that the sounds of impromptu voluntaries, often of great beauty in themselves, and of high musical value, have passed away without producing any permanent result. Composers, in moments of intense en-

thusiasm, have produced charming combinations, which during the course of subsequent elaboration have lost much, and in some cases all, of their original freshness and beauty. We are informed that an exceedingly ingenious invention is now approaching completion, by means of which the whole of an improvised musical composition, or only such parts of it as deserve being recorded, can be preserved in printed types, and by the ordinary method of notation, as rapidly as the master of the organ or piano produces the sounds of the notes struck; passages of music, simple melodies, and ordinary fugues, have been printed simultaneously with the striking of the keys. As the instrument approaches completion, it is confidently expected that the most elaborate and complicated passages can be noted in the same manner, and the printed score can be played from at once, or laid aside for the convenience of the performer or composer, to be referred to at any time.



A PATENT glass table filter has been shown to us by the "Sanitary Engineering and Ventilating Company," whose appliances were so highly commended by the Congress at Leamington last autumn. The handle, as will be seen in our engraving, serves as a stop valve to prevent the water dripping when the upper vessel containing the block of chemically prepared charcoal is removed, to allow the filtered water to be poured out. This is a much neater arrangement

than the older form, but we would be more satisfied if the shaft of the handle were made of glass, or the metal shaft passed through a glass tube, which would prevent any direct action of the water upon the metal. We heartily commend this filter to the notice of our readers.

RAILWAY communication between locomotives travelling at full speed, and the stations they are approaching, or have only recently left, has up to the present baffled the ingenuity of telegraph engineers, but quite recently M. de Baillechache, an inspector of railways in the service of the Compagnie d'Orléans, has succeeded in perfecting a simple contrivance, which enables the guard of a train to send or transmit messages, whilst travelling along a line of railway, to station masters or the guards of trains on the same line, or passing in the opposite direction. This discovery will obviously serve to lessen the dangers of railway travelling, which have been but too frequent during the last year, in France at least. As yet we have received no particulars of this invention.

NOTES.

THE JAPANESE GOVERNMENT, desirous of having its commercial treaty with Germany revised, has accordingly given notice to that effect, stating at the same time that the rapidly increasing commercial transactions that have sprung up between the German producers on the one hand, and the exporters from Japan to Germany on the other, necessitates the widening of the treaty obligations between

by experienced observers through the press, is to the effect that it only needs more care in the manufactured productions sent eastwards, to secure for them the highest place in foreign markets.

THE *Queen*, writing recently on linen embroideries, says that fashion has not as yet introduced into our house linen



SHIELD OF HAMMERED METAL. BY J. S. MEISTER, 1582.

the two countries. Until the present time, the ports of Nagasaki and Hakodadi, as well as the smaller trading ports of Hingo and Ningata, and of course the city of Yeddo, whilst being open for trade with German merchants, neither permits them to settle or hold any interest in houses or places of business at any trading place in the islands.

From the German papers we learn that Saxony and Silesia are making rapid strides in their commercial relations with China. Shanghai is beginning to be as full of fine Saxon cloth and Silesian small wares as London, and it only needs pushing on the part of other German producers to develop the enormous trade with the East which has, during the last few years, sprung up in the German export trade. The advice now tendered to manufacturers

the ancient costly materials, and we are at present contented with linen, granite, oatmeal and plaited cloth, cambric, piqué, jean, fine huckaback, diaper, honeycomb, and bath towelling, Bolton sheeting and damask, white, grey, and écru, the newest being prepared with a border for embroidering. The fabrics are mostly worked with Turkey red, blue, brown, and maize-coloured cotton, or black, orange, and green silks, filoselle, and crewels, white flossette, and embroidery cotton. These tints were all, in bygone days, fast colours for cotton, but now even blue and red cannot quite be depended upon; therefore it is advisable, before working, to dip both cotton and silk into boiling water to test their being ingrain. When the work is completed it needs washing as carefully as crewel work, and should not, if possible,

be sent to the ordinary laundress, whose chemicals and machinery are highly detrimental to coloured embroidery. Old Flemish needlework, executed on linen, with variegated cotton, has preserved its brilliant hues for more than two hundred years, showing how far superior to our own were the dyes of our ancestors. The Orientals use for the adornment of their linen carmine and cherry red, golden yellow, Veronese green, and cobalt blue, and these colours are so prepared as to last for ever. The Eastern work we now imitate consists principally of geometrical patterns, squares, lozenges, circles, flowers, leaves, stars, and sometimes birds. Animals do not often appear in such patterns, on account of the Mahometan law, which forbids the representation of living creatures. The mediæval designs are generally traced out on canvas; but the best workers preferred to let their imagination wander at will, undisturbed by the prospect of expending upon one piece months, and even years of labour. This accounts for the complicated work which now and then amazes us. Nowadays it is impossible to undertake tasks of similar length; we must therefore choose bolder and more rapid patterns. Some of the prettiest table linen and towels represent biblical, historical, and sporting scenes, others fantastical animals and classical plants—the lotus of the Egyptians, and the beautiful pomegranate. The latter device was introduced into England by Catharine of Arragon, in remembrance of her native land, and was used in the armorial bearings of Moorish kings. This fruit appeared in needlework at a very early date, for we read in Exodus that the robe of the ephod was of light blue linen, edged with figures of pomegranates wrought with purple and scarlet yarn, and with girdle to match. Embroidresses who prefer the Japanese style may intersperse their designs with the three national symbols of longevity—the stork, the tortoise, and the pine—or any of the gothic monsters frequently depicted with dragons' heads, the body of a horse, with the feet of a hare, etc.

The distinguishing feature of the new linen embroidery is its having no wrong side, in this again imitating Eastern needlework. The thread is secured and fastened off invisibly, no knots of course being allowed. The work requires a certain amount of practice; it is, therefore, well to commence on a small piece, and choose a simple pattern. Should the article, however, be intended for lining, the extra care for the back will be unnecessary. Every description of trimming can be employed on house linen; but the antique and special stitches are—the chain, outlining, darn passé, single and double herringbone, Holbein, and cross stitch.

The chain stitch, the oldest and most popular of all, is worked by hand, or in a square or round tambour frame, with a pointed tambour needle. It forms at the back a neat row of stitching, and is often used for outlining and veining. Its quick imitation by machine makes it rather undervalued as ladies' own work.

The outlining stitch is in requisition for the most delicate as well as the boldest patterns, where minute tracing and exquisite execution are indispensable. The cordonnet, coral, feather, Mexican, and fine shirt stitching are too well-known to need description.

A ROMAN VILLA at Abinger, Surrey, has been recently discovered, about four miles and a half from Dorking, going westward, and not far from the famous Leith Hill, from the top of which, as old Evelyn writes, "twelve or thirteen counties can be seen." The remains of the villa at present uncovered are in a field close to Abinger Park, once the residence of Sir James Scarlett, first Lord Abinger, but now

the property of Mr. T. H. Farrer, who has built himself a picturesque Tudor house near to the site of the former mansion, which no longer exists. It was in digging up a field on the south-east side of the new hall that the workmen came upon a large quantity of stones and broken tiles, which now lie in heaps on a cart road near. These remains showed that some ancient building or buildings had occupied the spot, and at once pains were taken to have the adjacent ground more carefully examined. The result of the further investigation brought to light not only the existence of the walls and foundations of a Roman villa, but a considerable quantity of broken tiles, pottery, and tesserae, with some coins of Constantine, Faustina, etc. Through the invitation of Mr. Hicklin, of Rose Hill, Dorking, a member of the British Archæological Association, several of the Council of that body have already paid Abinger a visit, and were much gratified with the excavated portions of the villa already made, and also with the silver and bronze coins, red and white tesserae, pottery, some pieces of Samian, nails attached to portions of roof tiles and shells—oyster and the large white snail, etc.—which were shown to the party at the hall. Measurements were taken of the chambers already laid bare of the villa, and a plan was made of them on the spot. They consist of a portion of the atrium, or reception hall, with a pavement of small red tesserae, more or less worn in parts, and now well secured from the weather by a thick thatch of straw placed carefully over it; an apartment to the north-east of this, measuring 11ft. by 6ft., and divided from the adjoining ones by well-built walls of stone and brick, another room running eastward, of similar dimensions, and another below this, on the south side, of a square form, measuring 11ft. 6in. by 11ft. Beyond, directly eastward as well as southward, are indications of other chambers in the excavations. There have not been many discoveries of Roman villas in Surrey, the one at Walton-heath, in 1772, over which the famous Stan or Stane Street passed, and which can be traced through Dorking on to Chichester, the Regnum of the Romans, being the best known and most perfect. It is, therefore, more than likely that this discovery at Abinger, so close to the line of the old Roman road, may lead to further finds in the immediate neighbourhood.

THE MINERVA VASE is among the Homeric remains which Dr. Schliemann and Mr. Streatfield have been so busily arranging for the last few weeks. It is a splendid vessel of terra-cotta, an indescribably brilliant brown in hue, with a throat thrice the circumference of its base, the upward spring from which is noble, and consummately adapted to the poise of a majestic top-weight. Without a single feature directly borrowed from animal life, the tutelary goddess of Troy, with owl-face, a woman's breast, a necklace, and a regal belt or scarf, stands unmistakable and authentic in poetical force of suggestion. It may be called barbaric and grotesque; but it is, withal, solemnly calm and beautiful. If the prodigal ingenuity flung upon the fashioning of these many marvellous forms be indeed barbaric, it is barbarism of that pure instinctive excellence which is untainted by the vulgarity of civilisation. There is an inexhaustible study of fictile shape in the curious pottery here assembled; and, after the Minerva Vase just described, perhaps the most striking of the terra-cotta vases from the palace of Priam is the largest of another and a commoner type frequent in the ruins, with two small ears or handles, and, equidistant between them, two great upright wings of an aspiring character.

WE also learn from the *Pottery and Glass Trades' Review* that glass slippers are produced by the cunning artificers of

extracts given by her reviewer are followed by the honest confession that some parts of the story quoted are repulsive, and others hideously cruel, such as one could only expect of one descended from a parentage such as hers. The toys and book illustrations intended for French children are in all cases selected with a view to temper the rough nature of childhood with feelings of pity and consideration for suffering humanity.

ANCIENT PAPYRUS MSS., consisting of letters and what purports to be a passport, have been sent home by Mr. E. T. Rogers, formerly consular agent in Syria and Egypt, now Minister of Public Instruction under the Egyptian Khedive. These relics of a remote antiquity are from one of the mounds near Medeenet el Fares, a town in the Fyoom, on the Upper Egyptian Railway, to the south-west of Cairo. They are probably from the site of the ancient Arsinoë, where the crocodile was even in earlier periods regarded with veneration. Near by were the artificial lakes of Mœris, which served as a reservoir for the overflow of the Nile; the lake and its surroundings occupying a space, according to Herodotus, of four hundred and fifty miles.

of Peter Paul Rubens. The colours in the textile copy are exceedingly rich and varied—perhaps too vivid at present to please at first, but with time and exposure to the light the effect will tone down sufficiently to secure in the distant future as excellent a likeness of the Queen as ever has been painted.

The series of tapestries illustrating scenes in the life of the Sir John Falstaff of Shakespear, are equal to any tapestry of a similar character that we have seen. The subjects are well chosen, the composition in every specimen we have had the opportunity of inspecting is good; the mode of treatment much more refined, and yet in perfect harmony with the spirit of the original story than one usually sees in dramatic pictures founded upon incidents drawn from the same source.

Mr. E. J. WATHERSON, the most active representative of the silver trade in London, etc., has, through the intervention of the Society of Arts, placed a sum of money at the disposal of the council for attaining a like object, namely, the promotion of artistic composition by the designers who identify them-



TURKISH JAR.



DANISH BRACELET.



DOULTON WARE.

In the same district Mr. Rogers has been prosecuting his search for those curious glass-drops which were used as standards of weight for the current gold coins of the Caliphs. He has been rewarded by the discovery of an ancient box containing metal weights and glass ones of great antiquity. These objects have also been sent home.

WE HAVE EXAMINED at Gillow's, of Oxford Street, the specimens of tapestry recently produced by the Royal Tapestry Works at Windsor, and designed for the decoration of the Pavilion intended for His Royal Highness the Prince of Wales at the Paris Exhibition of this year. One noticeable work of art in the series is the life size medallion portrait of Her Majesty the Queen, from a picture by Mr. P. Levin, who has in this really superb work sacrificed nothing of his art to meet the technical requirements of tapestry, by which means it has been most successfully copied in every detail. This work will be shortly engraved. The picture represents Her Majesty in regal robes, wearing the riband of the Order of the Garter; the hands are finely modelled, in luminosity of flesh painting and roundness of contour reminding us forcibly

with the handicraft of the silversmiths. The other day a deputation of watch-case makers waited upon Sir Charles Adderley, the President of the Board of Trade, in support of an inquiry into the system of Hall-marking of gold and silver. The motion in the House of Commons will be brought forward by Sir Henry Jackson, M.P. The deputation was presented by Mr. Eaton, M.P. for Coventry.

Mr. Watherson, taking the opportunity of stating the case of the silver trade, said they had lived to see the beneficent principles of free-trade extended to every craft save their own. The silver trade was taxed to the extent of from 12½ to 20 per cent., which was unjust, seeing that no other similar trade was taxed, and that silversmiths had to compete with electro-platers, whose goods were wholly untaxed, and, whether good, bad, or indifferent, were permitted to assume marks closely resembling the Hall-mark upon the genuine article. The tax was likewise, for good and sufficient reasons, impolitic, subversive of the principles of modern fiscal legislation, obstructive to art progress, and an insurmountable obstacle to technical education in its application to silversmith's work. He cordially supported the watch-case

AT POOL BANK QUARRY, near Otley, the property of Messrs. Whitaker and Sons, three blocks of stone were recently drawn out of the works on to the bank which weighed over 500 tons, were 64 feet long, 16 feet wide, 7 feet thick. It is easy to see, then, that in England at the present day it is possible to find materials for an obelisk as large or even larger than that one recently received from Alexandria. At the Otley quarry, it is no unusual thing to find stones of this enormous size, and perfectly sound throughout their entire length, raised and ready for the trade.

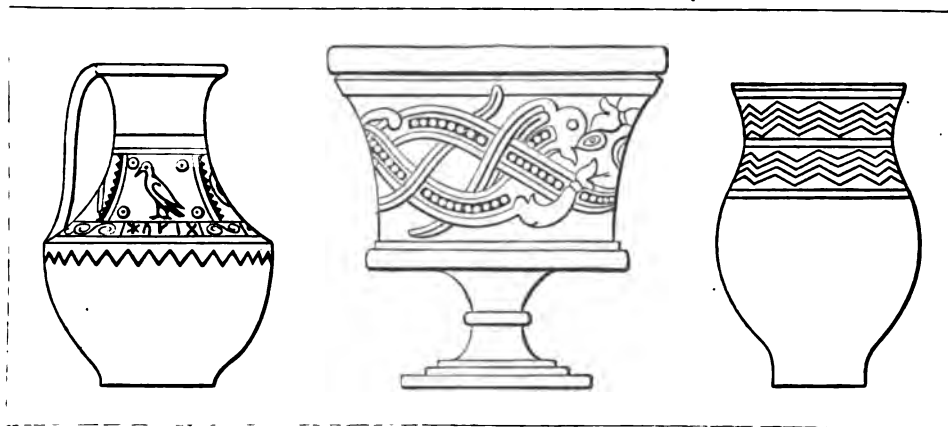
GENERAL D. SEAGER, says the *Academy*, "for more than four years past has been engaged in surveying the north-west coast of Africa, more especially the unknown region called Sedee Hascham, with a view to discovering the shortest and easiest route into the interior and to Timbuktu, expects to have completed his labours about the end of the present year. Some of his companions, we learn, have already twice made their way to Timbuktu. General Seager is preparing a map of the surrounding country, which will, no doubt, prove interesting." This will be very surprising news indeed to the residents at Mogador, who have scarcely missed the gallant General for more than a year or so from their little community, during which time he was living in an obscure lodging in the neighbourhood of Leicester Square, which is certainly not on the highway to Timbuktu.

TWO of the most valuable works of Italian sculpture of the Renaissance have recently been moulded for the Art Department; casts are now being erected in the South Kensington Museum. These examples are the *cantoria* which, displaced about one hundred years ago, have been lying at the Bargello, Florence, so that their designs are practically unknown; one is the famous singing gallery by Donatello, comprising noble panels of figures designed in relief, and cantilevers sculptured with foliage. The other gallery is that of L. della Robbia, and comprises gold mosaics and floral enrichments.

AN ART COLLECTION at Manchester is projected; Mr. Horsfall is Treasurer for the "Art-Museum, Manchester," Mr. George Milner is the Chairman, and Mr. Axon the Honorary Secretary—both of them good names when practical work is in hand. Eleven other members of committee are specified. The projected art-collection is to comprise paintings, drawings, etchings, autotypes, engravings, casts, pottery, and bronzes. The paintings, etc., are to be "all of subjects which are either already interesting to most English people, or such as, by explanation and description, can be made interesting to them." This is certainly a very important feature in the plan, and one which we hope to see carried out stringently, and intelligently as well. It would be quite possible that good works of art, not meeting this demand, might in some instances be offered gratis to the Museum; and in such case we should be glad to hear that the committee had even gone so far as to say to the proposing donor, "Your work of art has its merits, but those do not include attractiveness of subject to our Manchester men, and we would rather you bestowed it elsewhere." Addresses on topics germane to the Museum are to be delivered, selections from books read out, and vocal and instrumental music performed. The Museum is to be opened on Sunday afternoons—another good and most essential point: drawings, casts, etc., are to be placed in schools and in working-men's clubs. Subscriptions are received on behalf of Mr. Horsfall by the St. Anne's Street branch of the Manchester and Salford Bank. "The central principle of the Museum," says the present programme, "will be that knowledge shall be used by those who have it for the good of those who have less."

LIST OF ILLUSTRATIONS.

- Ancient Egyptian ornament in fine gold, the pattern showing a curious affinity to the gold work from Mycenæ, now being exhibited at South Kensington, and to the Italo-Greek goldsmiths' work, imitated so successfully by Castellani, of Rome; it also resembles the gold work of the same character brought from Timbuctoo to Fez occasionally, and reluctantly parted with by the native traders, who are sometimes possessed of fine specimens 33
- Lower portion of fine example of modern stained glass for an ecclesiastical building, designed and constructed by Zettler, of Munich 35
- Interesting specimen of rich Damascus embroidered cloth of the usual conventional pattern, but ably treated. This work has been successfully imitated by continental manufacturers 37
- Black walnut carved arm-chair, manufactured by Gillow, of Oxford Street, after designs of 18th century work 39
- Specimens of terra cotta statuary designed after Thorwaldsen 40
- Vase of porcelain glass treated conventionally after Pompeian patterns, modern 41
- A Baptismal Ewer in silver-gilt of 16th century work, chased and hammered. The subject for treatment selected by the artist is Abraham's sacrifice 43
- Two vases of antique pattern in fine terra cotta with heroic subjects 44
- The Lectern is a fine specimen of modern metal work, and shows with what advantage copper can be judiciously introduced. It is from a design by E. J. Tarver, Esq., and manufactured by Richardson, Ellson, and Co., of Brownlow Street, Holborn. The work is executed in polished brass, and relieved in parts by pierced and engraved copper plates. The book-desk, which revolves, is richly engraved with texts from the Old and New Testaments, and is supported by a structure emblematical of the Church 45
- Faience ware, after oriental designs of the highest possible artistic value; the water-bottle of enamel has been copied with but slight alteration from the original 47
- Small wall press of fine carved wood, to suspend from a nail in the wall, of very elegant proportions 49
- Economic fire grate, with brass mountings cast in low relief, designed after Japanese suggestions of pattern. This work suits admirably the modern requirements of taste, and is well worth the attention of architects. Specimens can be seen at the office of the firm in Queen Victoria Street, E.C. 51
- New flock paper, invented by Messrs. Wollams and Co., of High Street, Manchester Square. The floral pattern of conventional treatment is full of interest 53
- Metzler's chamber organ, a fine work, with two manuals, to be seen at their studio, Great Marlborough Street, W. 55
- Jewelled ornaments, earrings and solitaire, composed of cut rubies and diamonds, designed after a Hungarian pattern of great beauty; this fine work has been devised and carried out by Goldschmidt, of Prague 57
- The glass table filter is an improvement on the ordinary filter, both in respect to the composition of the material through which the water passes into the lower croft and in the handle, which serves instantly as a stopper to prevent drip on removing the filter. This invention is the property of the Sanitary Engineering Company, Victoria Street, W. 58
- Shield of hammered metal, representing the history of the grape vintage, with figures of Bacchus and Cupidons; full of fine drawing and suggestions for ornamental designers at the present day. This famous work is by the artist Meister, and is dated 1582 59
- The inlaid pattern for either wood or tiles is of the finest type of art; very pleasant to the eye, and perfectly adapted for the purpose 61



"After careful consideration of the qualification and abilities of foreign workmen judged by their work, the conclusion I have come to is, that they are quite able to hold their own with us, and that their best skilled men are fit to be placed on the same footing as ours."—C. A. PERKIN, Stationary Engine Maker, Birmingham (at the Vienna Exhibition), 1873.

THE MOORISH ARCH.



WHEN erst an oriental hospitality welcomed me to the shores of Morocco, here, I contentedly sighed, shall I find a refuge alike from the fictitious excitement of the modern Babylon as from the minor physical ills to which the climatic influences of my beloved country supply no sufficient antidote. In this placid land of dreamers—of smokers of *kief*, and consumers of *hashisha*—I may lay me down with a calm assurance that naught can arise to impair tomorrow's digestion, or cause any serious departure from the sublime mental condition, so belauded by an eastern philosopher, of thinking of nothing. Under skies of feather-decked sapphire,

enveloped by an atmosphere whose soft geniality never varies, listening by day to the plash of cream-topped breakers as they fall in rhythmized melancholy over the jagged remnants of sandstone beneath my window, and by night gazing upon that same sky bright with celestial torches, surrounded by a people of whose language I know—thank heaven—not a word, and whose speech and customs date from the times of Abraham and Mohammed—here at last shall the poor soul repose herself, free to pursue the noiseless tenor of her way, where the wicked cease from troubling, and where the weary are at rest.

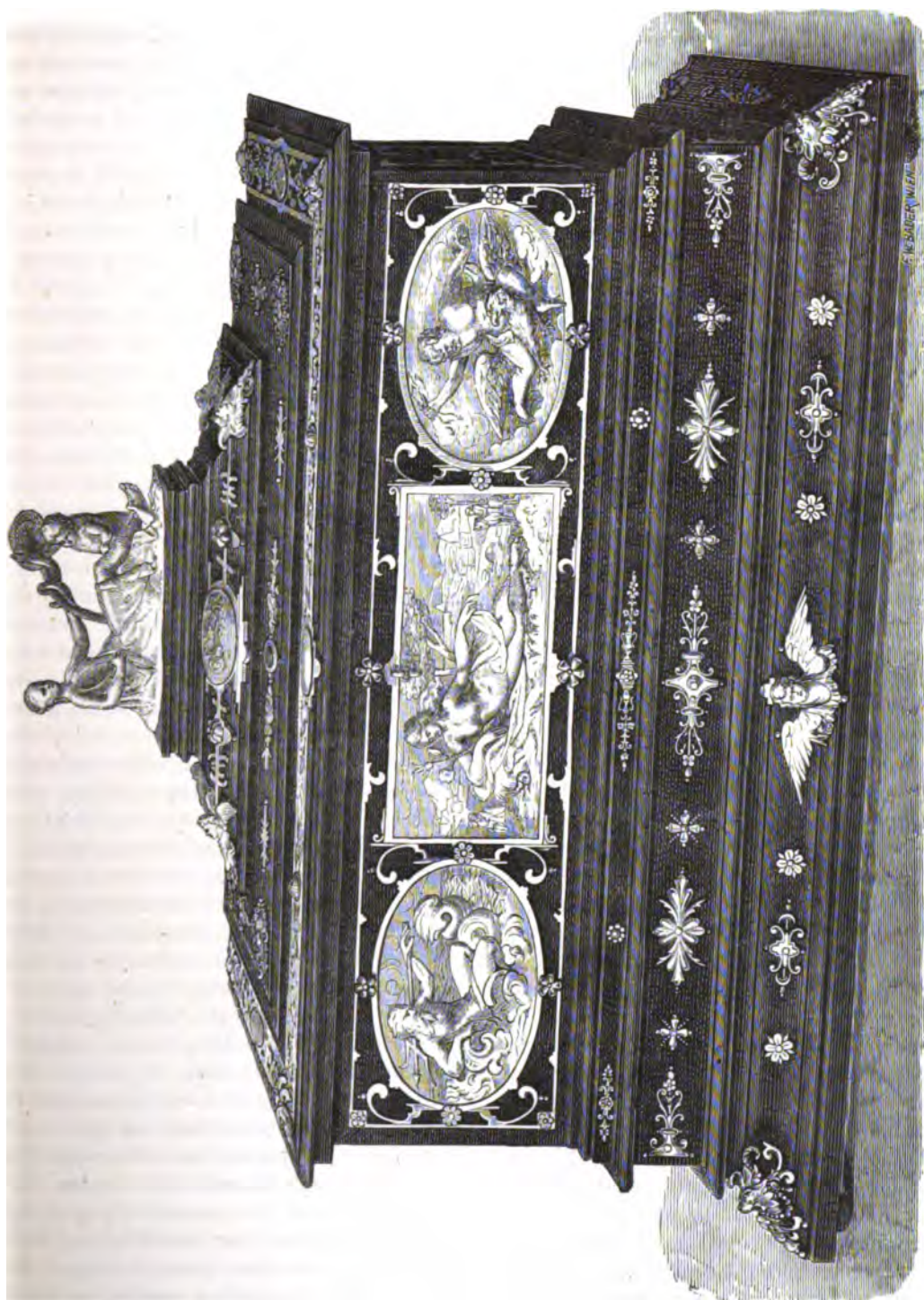
But I am weighed with the incubus of an ever-restless

presentiment. 'Tis not that the sun has ceased to shine, or that the balmy zephyrs of the south no longer fan my seaward-turned brow. My pulse as temperately as of yore keeps time, and by exercise and exposure my cheeks have assumed a hue some shades ruddier than the cherry. The *cuisine* of our Moorish and Hebrew neighbours seems to agree with Europeans. Shebel and bream, fowl, capon and duck, *kifta* and *kuskusoe*, suffer rapid consumption between these omnivorous molars; while the stoutest and deepest drinker of hyson has confessed in me a not unworthy rival. Yet am I haunted by a shadow, a nonentity, a grim Frankenstein, for whose awful form I am for ever fearfully looking, yet from which I instinctively flee. The foreboding of the dread image's presence depresses my spirits, threatening consequences which no medicine can alleviate. If I saunter in the *sokh*, as the barbarians persist in calling the market-place, it stares down on me from over a score of miserable shops, and the impassive cross-legged heathen who dispense their tea and cotton to handsome (and veiled) ladies of the Jewish persuasion wonder at my precipitate retreat. Should I rush down a narrow alley between the blank walls of unrelieved white, some unsuspected turning reveals its ghastly outline to my affrighted vision. With lowered lids and hasty step I make for the beach: alas! within each of the gateways, so numerous in a Mussulman town, through which my way leads me, it assumes some new form wherewith to cow my trembling nerves. At last the boundless ocean lies heaving beyond the deserted water-port. With joyful, expectant stride I push on towards the outer wall of the town. I approach the dusky battlements surmounted by rusty cannon, and guarded by an imposing garrison of some half-dozen soldiers in high pointed fez and creamy *haik*. The sea is before me,

with all its cheery, bracing music, its grand majestic motion: I pause but a moment to glance upward as I pass the marine portal of Mogador—when there! *there* it is again, larger, broader, but of the same awe-inspiring proportions as before. Ignominiously I turn and flee—flee to my own house, and burying my fevered head in a waste-paper basket, bring my optic nerve in violent contact with a skeleton sketch of my merciless tormentor, the unique, the invariable, the ubiquitous MOORISH ARCH.

What Moorish Architecture would be bereft of its arches, it is difficult to imagine. We have seen how it reaches its highest development in buildings devoted to religious uses, in the lofty towered mosque and humbler *zawiya* or sanctuary, and that its main characteristic and principal charm is its simplicity. The feature is naturally more prominent in domestic habitations than in the sacred structures to which I have referred. The existence of a conscienceless *misgovernment* is a strong barrier against display. Everything suggests a close relation between present forms and past habits. The tiny *hanoot*—which, for want of a better name, I must call a shop—is square and flat-roofed, even as the great merchant's house is square and flat-roofed. The former is but an advance on the thatched hut of the Berebber; and what is the grandest mansion in all Barbary but an index to the customs of ages, and the suave conditions of a beneficent climate? Look down this narrow street, and you shall behold on either side two dead walls rising high above the stream of lazy camels and mutually vituperative Arabs. Behind these dwell the descendants of wily Jacob and nobler Esau. Being built by and for natives, and not on the plan of some reforming insect of a European, the houses have no windows on the outside, but only here and there an infinitesimal perforation, hardly sufficient to allow the passage of a moderately sized Dutch cheese—a relic of the days when every man's house was literally his castle. Entrance to the interior is gained through a heavily barred door which admits us to a large courtyard, corresponding to the Spanish *patio*, whose ghostly recesses are stored with the lawfully acquired spoil of China and the Indies, in other words, tea and cotton. The patio is sacred to commerce. In one corner is just visible the office, wherein sits all the day long a bearded believer in the Prophet, or maybe some acute Hebrew, who will undersell Manchester herself and construe you a dark passage from the Talmud over the same cup of green tea. Whether an office by any other name would smell as sweet is a question I willingly leave to philologists and any future commissioner of works—should Barbary ever be blessed with one—and with the passing reflection that the nose is a feature which in Moorish towns has been known to “evolute” in a surprisingly short space of time from Roman to *retroussé*—from constantly turning up in alarm—humbly draw your attention to the galleries which overlook the courtyard in a double row above our heads. You will also observe a large square opening in the roof, which allows a flood of genial warmth to fall

through the clustering geraniums which taper fingers have trained around the stately pillars, and upon the fairer garden of young forms playing hide-and-seek among them. The apartments opening on the corridors are long and lofty: the doorways, and windows if any, are invariably arched. The glance of lustrous oriental eyes must not divert our attention from the rude yet pleasing devices graven about each graceful curve and its supporting line. In some cases the portal is fringed with a most delicate work resembling a pattern in embroidery; others are adorned with a simple border of semicircles or vertical crescents. Another flight of corkscrew stone stairs leads us to the roof, at once the farmyard and evening promenade of a Moroccan family. Accompanied by the chirping of attenuated roosters, we pace the lime-washed terrace or *azotea*—we rather affect the Castilian in Diego-ridden Mogador—proceeding leisurely to inspect our neighbours' domestic arrangements and scan the horizon for the steamer that is always overdue. The view from a Moorish housetop is so characteristic of the country, and gives rise to so many novel reflections, I purpose one of these days bringing out a work to be entitled, “Sunset on the Tiles.” By a Bird's-eye Observer. At my feet lies the fair white town, sheening bright in her setting of Atlantic azure. Far away to the northward runs a line of sand dunes, about whose rocky base the foamy breakers of an ocean are for ever beating: far as the eye can follow that golden track advances, until it melts in the blue distance, in the dim regions of the big Iron Mountain. From furthest north to yonder dark-browed hill that looks down upon the dreamy bay of Tegrwelt southward, what a majestic sweep of mountain and valley! Sandhills burning under an almost tropical sun; lo, the breeze touches them and they smoke like a thousand volcanoes: and there is sharp-ridged Atlas lifting his snowy pate to the overhanging sky! Groves of olive and fruitful *argana*; a river bed winding among the silent witnesses to its ancient renown, and marked by the blushes of countless oleanders; its sleepy banks adorned with the garden of a sultan and glittering *kashas* of half a dozen country dignities. Yonder icy peak has been scaled by no Christian hunter; even his majesty Mulai Hassan has little authority over the hardy tribes that people its cold recesses. Between us and it lies the empire of Morocco! To us who know something—though it is but a little at most—of this brave and unfortunate race, the spectacle has a deeper significance than its striking natural features would suggest. A smiling land overshadowed by a hateful system of despotism, which is only saved from immediate and well-merited obliteration by the blind patience of its victims and certain human qualities in some of its executors—a fainting Andromeda in the grasp of a monstrous Fatalism, which threatens not only to extinguish the ebbing life but to trample on her yet beautiful remains—a nation that for centuries ruled the Peninsula with surpassing glory—that built the immortal pile at Granada—now reduced to



CASKET FOR HOLDING DEEDS, IN EBONY, WITH PANELS IN BOX-WOOD, ENRICHMENTS IN GOLD AND SILVER, 16TH CENTURY WORK.

hopeless serfdom and obscurity, and its destinies guided by the drunken slave of a monarch who is, as for obvious prudential reasons I hasten to inform my readers, a model of enlightenment and liberality, a king of kings, lord of lords, and the tender husband of some five hundred sweet creatures gathered from all corners of his dominions for the royal solace.

Whole tribes are beggared by the extortions of a powerful *basha*, who in turn has to disgorge a large portion of his spoil that he may outbribe his numerous rivals in a court which labours to be splendid and only succeeds in being vicious; and when, pressed by hunger and nakedness, the miserable worms turn, down comes a contingent of H.M.'s terrible army of negroes and renegades—hardly less famishing than the “rebels”—with *carte blanche* to take *all* they can get, as happened only the other day near Rabat. There were three days' rejoicings down the coast on account of this glorious “victory,” and I suppose the roar of our decrepit batteries drowned for the time being the cries of the outraged and murdered wretches whose bodies lie beside their charred homesteads for jackals to feed on.

It is hardly possible to exaggerate the injustice under which the unprotected tribes of the interior are labouring—an injustice largely fostered by the fatalistic creed of Mohammed. Your untutored Arab is as meek and law-abiding a being as walks the earth. His respect for authority is boundless and unwavering. Stern and indomitable to outward seeming, he submits with scarcely a murmur to the grossest exaction on the part of his rulers; surveying the wreck of his village by a storm and the spoliation of his household gods by a tax-gatherer with the same philosophic remark, “*'Mkatooob*”—it is written. An event accomplished is recorded in the book of fate, and piety refrains from questioning its expediency or right.

That the climate tends to induce this equanimic condition is undeniable. There is in the tempered airs of Morocco a voluptuous stillness which renders existence delicious, provided it can be carried on without action. All through the long, long summer rain is unknown, yet the light breezes from snow-capped Atlas cool the rarefied atmosphere, and fortify the wayfarer against the rays of a nearly vertical sun; and even when October brings the Atlantic zephyrs loaded with western moisture, there are but few days when the sky is seriously overcast, so well balanced is the arrangement by which Phœbus is permitted to rule the light, while Jupiter Pluvius assumes dominion over the sleeping hours. Although in the “country” the winter nights are by comparison cold, the thermometer indoors is rarely known to vary 15°—*i.e.*, from 60° to 75° Fahr.—all the year round. The seasons pass with little more to note their tranquil flight than the changes in the fruit-market; the gigantic water-melon of July giving place to the pomegranate of October, this in turn yielding to the luscious oranges which comfort the thirsty soul in December, and add their

warm colouring and swelling ripeness to the Christmas tables of our residents. The wandering Briton rejoices to recognise, under very stately, but none the less perfectly unintelligible appellations, many of the humbler friends of his youth. His surprise is heightened by the uniform reticence of oriental writers when dealing with the edible productions in favour with their heroes. We are all so accustomed to the ambrosial banquets of the Arabian Nights, that we learn with something like a nervous shock that had Prince Camaralzaman or, let us say, Aboulhassan Ali Ebn Becar found his way to the shores of Barbary, he must have subsisted to a great extent on potatoes! Shade of Lamartine the graceful! Imagine the Beautiful Persian dipping her taper fingers into a *tajjin* of ribs of beef and cabbage, or cutting off, with Nouredin's scimitar, several bulky slices of what the immortal Mrs. B. Prigg called a “cowcumber,” wherewith to flavour her unpretentious meal of bread and oil. Truly, she might have chosen from the well-stocked market a more digestible accompaniment, tomatoes for instance; or for a very moderate outlay of *fluce* procured a nearly inexhaustible supply of cauliflowers, vegetable marrows, the homely turnip, or—provided of course that Nouredin would take some too—the appetizing but odoriferous spring onion. These, indeed, are but a few of the soil productions which appear in due season on these coasts, and even as I write, the ancient dame who superintends my domestic arrangements enters bearing a basket of young green peas, over which she pours out, as is the custom among the daughters of Araby, various pious observations thrown out with a view to their being “considered in her wages.”

And shall we forget the dreamy month of August, when mountain heaps of deep-stained or paler grapes rise from every stall in the dusty *sokk*, or lie bursting in the sun upon cool-looking dishes improvised from strange African leaves presided over by the stranger sons of Sahara, whose long-suffering asses have brought the celestial fruit from far distant gardens of the interior? But sweetest to my palate of all the varying fruits of the earth—sweeter than the rosy-cheeked apple or mouth-melting pear, imperial melon, blushing apricot, or sun-burned almond, aye, sweeter than the sweet date of Wadnoon—is the full-flavoured fig of the Christians—Karmooos del 'Nsara—or to revert to less figurative language and make ourselves intelligible to the sated patrons of Covent Garden, the prickly pear. There is a wondrous charm in wandering down the evil-smelling alleys of a Moorish city when summer's sun is high in the sky, and when upon all nature a mid-day calm is resting; when the very dogs—those noisy guardians of the night—sneak past you with a drowsy eye that has “no speculation” in it, and nought human is visible between the narrow walls except the occasional apparition of a mysterious veiled woman, or perchance some magnificent Moslem dandy; and then to hap upon the shady stall of some dark-skinned greengrocer, who invites you with an

"O Merchant!"—in Arabic "*Whoa Tajjar*," but this bears so close a resemblance to a certain adjuration late heard in Britain's capital that I hesitate to introduce it—to taste a sample of the sparkling fruit lying before him. Ever and anon he sprinkles the glittering mound with water as bright as that of Zem Zem's holy well, and as you pause to collect a sufficient quantity of *fucc* to equal a farthing (English), he selects half-a-dozen or more of the ripest and reddest (N.B. Always choose the red in preference to the yellow), and proceeds with gravity to divest them of the skin, whose tiny thorns are apt to prove troublesome unless skilfully manipulated. With a sharp knife he first severs the two ends, then makes a slit lengthwise, and gently pressing the sides open discloses the golden egg within. You transfer it from this naturally formed cup to your own mouth, and may repeat the process any time during July and August, at the average rate of, say, thirty prickly pears to a penny.

It speaks volumes for the fertility of the soil that though only a small part of the land capable of cultivation is utilised, and the labour of transport is prolonged and severe, yet here on the coast we can buy vegetables for sums that would hardly induce an English beggar to carry their weight half a mile.

It would indeed be hard to mention one natural advantage the lack of which prevents this sunny land being rich and honourable among the nations. It is true that little of the country is known to Europeans except the sea-shore, and this, on the testimony of every traveller who has crossed the central plain between Atlas and the ocean, is its least fertile region; yet even here we see that wherever a peasant scratches the earth with his antiquated plough of undressed, curved wood, there springs up untended nearly all the fruits that can be desired either to support or adorn existence.

No one who has journeyed, as the writer of this sketch has done, a couple of hundred miles along the coast, can deny that even in the height of summer water is plentiful and fairly drinkable. Oh, those curious old wells! The first you see of one is the bandaged camel pacing patiently round on his everlasting circular tour. Being fastened fore and aft by a couple of beams, proceeding from what I believe is technically known as a cog-wheel, he finds it impossible to deviate a foot's breadth from the narrow track left by his spongy extremities. I suppose camels never get tired of walking—the chivalrous Moor seems to think they don't—but I confess to being touched by the uncomplaining helplessness of the poor brutes. The pathos of their lot lies to my thinking in their being blindfold, and fancying they are going straight when all the while they are treading that weary circle that never varies. The cool water comes up in pitchers fixed at regular intervals to a grass rope revolving upon wheels, and is emptied into a trough, whence it runs into the stone tank hard by. Sometimes a dozen of these wells are visible from one point on the road. They are a great boon to

the scorched and thirsty traveller, being generally situated near some grove of lemon or fig-trees, which forms a most agreeable accessory to his midday encampment. For travelling is conducted on very primitive principles. You hire a couple of mules, one of which is for your own use, the other being laden with provisions to last at least a couple of days. If you are but distantly connected with any personage holding consular dignity, you will feel it owing to his sublime elevation to provide yourself with a "soldier" (N.B. a dirty scoundrel in a red cap, and mounted on a barb which it would be gross flattery to call a Rosinante), but as I—heaven help me!—cannot lay claim to so proud a distinction, my ambition is solaced by the retaining of a non-military Sancho Panza. His duties are not particularly onerous. He goes before you by day and finds the right road among a score of camel tracks, and at night does the amiable to any honest villagers with whom you may choose to pitch your tent. He then opens the *shwereeya* or panniers, and brings to light the roast fowls and flat loaves of pure wheaten bread which form the invariable supper of the wandering Briton in these latitudes. A bonfire is made which lasts till daybreak, and it is ten to one that you all—master and man and unsophisticated hosts—sit round it half the night, drinking green tea and listening to wonderful stories of speaking elephants and stupid foxes. The Moroccan Arabs love to hear anecdotes bearing on the non-sagacity of poor Reynard. They delight to represent him as an absolute fool, and only the other day I heard a Moor recite amid roars of laughter the misadventures that befel a fox in his unsuccessful attempts to "take in" a hedgehog.

It may not be superfluous to remind my reader that the western coast-line of Morocco has an extent of, roughly speaking, 400 miles. At pretty regular distances of 60 or 70 miles—about two days' journey—the traveller lights upon cities more or less populous, the energies of whose inhabitants seem wholly given up to trade. This, perhaps, is not saying very much, and on a further acquaintance with the races we call Moroccan it becomes evident that the eagerness displayed in an occasional mercantile transaction is more than counter-balanced by an unconquerable indifference to any other subject among the many harrowing questions that engross modern thought. *Pas trop de zèle* is a caution never heard in Barbary, for the simple reason that it is never needed. Here, on the rock-bound shores of the Atlantic, our conversation is mostly with descendants of the sometime rulers of the Peninsula; and after a comparison of the leading features in the Castilian and Moorish character, one is puzzled whether to assign Morocco to Spain or the latter country to Africa. The government of Alphonso is just now doing its best to gain a footing down near Agadir—a port closed to Europeans because it is a port, whereas the others are about as safe as the coast of Portugal during a westerly gale—by means of a naval demonstration of a very meek description; but it is an

open question whether its spasmodic activity will be a match for the splendid immobility which characterises the policy of this realm. If the tentative be successful, and a Christian colony be established on the borders of Wadnoon, which is, in the opinion of many geographers, the key to the whole interior of Africa, including the fabulously extensive commerce of Timbuctoo, the ulterior consequences are beyond calculation. In the meantime, Morocco is to all intents and purposes excluded from European influence, nature co-operating with creed-prejudices in barring the entrance of the Nazarene—for by that grandly humble title the Moor designates all who are neither Mohammedans nor Jews. Once or twice a month a steamer hailing from St. Katharine's Docks appears in the offing, crammed to the hatches with tea-chests and those ponderous bales of cotton goods that one sees in the warehouses at Manchester; and straightway the air becomes charged with an all-pervading commercial magnetism. The excitement caused by the arrival of a British steamship among the sedate followers of the Arabian apostle must be seen to be believed. It is needless to say that Jewry—or the *Mellah*, as they call it here—is stirred to its depths. Long figures in blue gaberdine and spotted headkerchief jostle elderly and respectable Moors in the race down to the *marina*. The dark rocks skirting the town seem alive with the moving forms of women and children, the latter decked with gay robes of scarlet or blue, while the former, true to their oriental origin, envelope themselves in a light-hued cloak which, passing over the head and shoulders with a series of twists which none but a Mooress could accomplish or describe, completely hides from view every portion of the fair wearer's charms except one more or less roguish eye. Whether this excessive modesty is attributable to a bashful sentiment on the part of the ladies, or to a certain Othello-like disposition in their male nearest-of-kin, I am not in a position to state, but certain it is that there do occur accidents in the arrangement of the *haik* which (in the non-presence of Othello) allow more than one Cassio to steal a glimpse of the blushing cheek and tender, eastern lips of the modern Desdemona, though I would not for a moment be so ungallant as to suggest that she might not, were she so minded, rival that damsel of Moore's creation

Who, if between the folds but one eye shone,
Like Seba's queen could vanquish with that one.

The daughters of Israel are not less jealously screened in their out-of-door perambulations, and can only be distinguished at first by the spotless white of the shroud which veils their (occasionally) sylph-like beauties, and by its being of a much choicer material than the coarse *haik* of the Moorish woman. All classes take an interest in the *vapor* which supplies them with the great necessities of life; by which we understand tea (green), sugar-loaf and shirtings; yet there is not upon the whole coast a single town where the captain of a steam or sailing-vessel can feel assured that a day may not raise

such a sea as will compel him either to depart precipitately or else select a comfortable spot between the rocks whereon to beach his ship. So in fear and trembling he casts anchor a mile or two from the shore, and waits until it shall please some person or persons unknown to despatch a certain number of boats, resembling canoes in shape, but capable of holding several heavy bales, to relieve him of his cargo. These lighters are of necessity strong craft, having at times a heavy surf to encounter, and it is curious to observe how a different style of build prevails in each port, according to the peculiar freaks indulged in thereat by Neptune, and the nature of the packages requiring transport. Thus at Rabat, where there is a long, heavy swell and considerable export of wool—a light article—one finds large, roomy boats; while lower down the coast, notably at Saffi, the principal grain market, you go ashore in a coffin-like structure, eminently calculated to impress a person of nervous temperament, but admirably adapted for conveying its heavy load of beans through the short, jerky breaker which will be remembered with a shudder by every sojourner in that hospitable region.

We all know that the Briton is at home upon the briny element; and if required to give a faithful reproduction of my sensations on being piloted for the first time through the Saffi surf, I humbly believe that it would not be lacking in that dignity which is the birthright of Nelson's compatriots. I know that just at the critical moment when a breaking wave was about to sweep some tons of water over our *falooka*, one of the oars gave way. I now know that one of the oars does always give way, but I did not then, and—well, I recorded the incident in my note-book. The next instant we were lifted up in a blinding shower of spray, hurled forward for about thirty yards, and then dropped rather heavily into a caldron of broken water, which turned the boat round first one way and then another, now driving her all but on to a most uncomfortable-looking rock, then sucking her down so very low that there seemed every prospect of our lunching with the dear mermaids, and finally threw her with a last quiver upon the welcome beach.

So far good. But how can I hope to present even the faintest outline of a Moorish seaport on the day of a steamer's arrival? At all times it abounds in the elements of picturesque novelty, but now they are intensified a hundred-fold. One naturally glances before landing at the peculiar structure of the houses with their delightfully irregular terraces, their gracefully sweeping bananas and palmetto plants; their walls so scrupulously white and decorated with the narrow lattices, behind which we conclude bright eyes are languishing; at the stately towers of mosques, and the threatening front of some dark *kasba* or citadel. Nor can one avoid casting an inquiring look at the range of hills whose bare sides seem to dissuade the new comer from attempting to reach the fertile plains of the interior. But far distant speculations like these are driven from the mind the moment you

step ashore, for you find yourself among a crowd of stalwart savages busily and noisily engaged in rolling enormous packages of merchandise to and from the water's edge. Their simple garments of second-hand sacking leave nothing to be desired in the way of coolness, and (being, perhaps, like your very obedient servant, a Thames man, and not wholly indifferent to physical culture) you will not fail to be struck by the splendid

drink, or smoke between the rising and setting of the sun, he is to be seen toiling the livelong day in a blazing atmosphere, his shaven head decorated with beads of perspiration and his brawny figure braced up to the very perfection of "form." He is cheerful withal, and the air resounds with the chorus of deep, strong voices keeping time to the bump of the bales as they are tumbled along the waterport. As you plod slowly over the soft sand up



JARDINIÈRE IN GILT BRONZE. DESIGNED BY H. C. ENTWULF, VIENNA.

development of frame and muscle around you on all sides. A Moorish boatman of average training exhibits in a marked degree that maximum of sinew no less than the minimum of fat which is the too-often-unrealised ideal of our amateur athlete. He possesses staying powers that would astonish the critical frequenters of the dear old Packhorse at Staines—does it still exist, I wonder?—or the time honoured, world-renowned Ship. During the month of *Ramadan*, when no Mohammedan tastes food,

towards the shed miscalled a Custom House with which the outer battlements are disfigured, you run against the dusky representatives of races whose very names were but yesterday unknown to you; men of all tribes and nations of North-western Africa, from the coal black negro of Timbuctoo to the olive-complexioned descendants of Boabdil and Maimonides. Here stands a dark-browed and stern-eyed being whose blue salampore thrown Hamlet-wise over his broad shoulder bespeaks the native

of a far-away province of the interior. There stalks the veritable Arab of Sahara in dusty *salham* and shaggy, wolfish locks; his proud step and haughty glance forming an amusing contrast to the shabbiness of his apparel and the unfathomed depths of his ignorance. He is your only true conservative since the last Reform Bill, and though tolerably courteous to any strangers who may find their way to his desert home, has an invincible repugnance to the most trifling innovation, whether proposed by Moor, Christian, or Jew. Utterly unlike him in every thing but his creed is the cream-faced *taleb* from Fez or Morocco, whose life has been passed in the shaded courts of some miniature Alhambra, who dabbles in business just as an aristocratic don might toy with the stocks, and spends his cultured ease in inditing the Sultan's correspondence, or penetrating in advance the mysteries propounded in Chapter LV. of the *Korān*, entitled the "Merciful." Beautiful scents no less than a singular attraction for the fair sex (shared, I believe, by the wisest of ancient writers), are the proverbial weaknesses of Mohammed, as well as of his followers; and every Moor of rank or property aims at possessing some calm retreat, where nothing worldly can intrude to vex his philosophic reveries or mar his anchoritic enjoyment of

The perfume breathing round
Like a prevailing spirit;—the still sound
Of falling waters, lulling as the song
Of Indian bees at sunset, when they throng
Around the fragrant Nilica, and deep
In its blue blossoms hum themselves to sleep.

On a corner of the beach where the sun shines the hottest, several young barbarians—many in a condition of unabashed nudity—are at play, some with their brown bodies glistening from a recent tumble in the breakers, others rolling luxuriously in the yielding sand, whose burning particles appear to afford immense satisfaction to their southern temperaments. There you remark a curious type of humanity in clothes of a semi-European cut, a small, sharp-featured creature with extraordinary linen and a cigarette; and are informed that he is a rock scorpion, or as he, having due regard to the ancient renown of the mound "in temporary possession of the English," prefers to be called, Calapénsé. Here are Jewish merchants in *bermousse* and slippers; lusty porters roaring out oaths in idiomatic Arabic; renegades cursing with equal volubility in half-a-dozen tongues, Aryan and Semitic; asses laden with water-barrels whose contents are duly advertised by bell and mouth; sneaking curs who will make night hideous, and become lions after dark; disreputable-looking *shereefs* who demand, in the name of the Prophet and of as many calendared ruffians as you like, alms; pretty little Hebrew girls with the eyes of houris and lips of coral—all swarming together in a busy crowd which bewilders the stranger with its incessant movement and kaleidoscope changes of colour, rendering it impossible to seize one quarter of its features for after consideration until, presto! you become aware that you are addressed by a remarkably handsome young gentle-

man under a helmet and arrayed in summer costume of the very latest fashion, whose *insouciance* appears calculated to resist any amount of tropical heat or water-port bustle, and whom you immediately and with gratitude recognise as a countryman. His "Ve'y glad to see you, I'm Shaw," falls like the softest music upon your wearied tympanum, though upon the interchange of cards which follows some conversation—eager on your part, you being new to the country, but of a decidedly *blasé* character on his—you learn that your deliverer's name is not Shaw, but—however I must refrain from inviting attention to a gentleman to whose hospitality I am indebted for some most charming experiences of Moorish life, and who, were I able to tell but the half of what I have seen, would be invaded by every lover of rough sport, and every *virtuoso* within the four seas for several years to come.

Thus far have I been driven by the fiend that ceaselessly mocks me with an Arch. All the *djins* and *afrits* of the Arabian demonology are represented to me in those countless openings of horseshoe form into which I peer as into the remote past whose secret they seem to hold. I would fain pluck out the heart of their mystery, fain trace the subtle arrangement of curves to its origin. There they stand on all sides, silent, yet challenging scrutiny; in the solid masonry of the town walls; in every junction of narrow and crooked streets; over the shop windows, and absolutely forming entrances to other rooms above the shops. I wonder how many times a day yonder shereefian sage totters out of his arched doorway, and whether *he* too has ever pondered on the beginning of all art. Before he has mumbled many more *Allahs* between his toothless gums we shall see him carried out to the Golgotha on the near hill-side, and a rough stone, or perchance a stick with a kettle tied to it, will be all to remind us of *him*. Has *he* solved any of the great problems? If so, why does he not speak while he may! He is presumably learned in all the traditions of his nation: why does he not enlighten us ere going to his long, dark home?

Probably because he is not quite sure himself,—so let us wish him God speed and take some other teacher. Not me, gentle reader, for I confess to being only his better in that I know my ignorance. Your instructor must be of the race in whose infancy the magic symbol was reared, or at least of the grand Semitic family to whom was given in old time the power of reading the stars, of harping the sweet melodies of Sion, and piercing the heart of all mystery. You may find among the many-peopled cities of Barbary some fair embodiment of the culture of ages and the special favours of divinity. Such an one will wean you by degrees from the shallow philosophy of a century to the deep, crystal fountain of all the cycles. You will learn to recognise as realities what were once but the dimmest shadows. To be in daily contact with a type that has outlived empires will lead you to dwell on the immutable; and every graceful

action and chastened tone will suggest a beauty conceived in the long-forgotten youth of the glowing Orient. The eye charged with liquid fire of the storing of centuries will communicate its all-attaining warmth, and should your poor northern spirit be in danger of consumption by so

resistless a flame, trust the lips of dew—cooler than the dew of Hermon—to render its caloric innocuous.

If my doctrine be objected to, it must be remembered in justice that I have written under the immediate influence of a stroll under the arches.



MODERN GLASS JUG AND CUP, SILVER MOUNTED. BY F. SCHMIDT.

FRENCH GOVERNMENT AID TO THE FINE ARTS.

PASSING, the other morning, through the finest park—to our mind—in Paris, the Parc Monceau, where the trees seem finer and to have attained a greater age and a larger growth than elsewhere in the French capital, we noticed two new bronze statues the size of life, the one a “sower of seed,” the other “a reaper with his scythe.” Our friend, in pointing out their ex-

cellences as modern art, explained that every year such works as are considered deserving are secured by the Government at the Salon, to be used for the decoration of Paris and the enrichment of the provincial museums. This admirable method of fostering art amongst all ranks of artists in no way injures the self-respect of the producer, and it is something to be able to boast that the public are possessed of one's work which would otherwise pass into the hands of a private collector, enriching nobody by the transaction except the crafty expert, without whose opinion, forsooth, Cræsus dare not buy.



NOTES OF THE PARIS EXHIBITION OF 1878.

WE had recently the opportunity of visiting the Palace of the Champ de Mars and the more permanent structure on the opposite side of the river, where the Trocadéro bids fair to become, for the future, one of the most important show places in the gay capital. At first sight the idea for the ground plan of the whole seems to have been borrowed from the ordinary arrangement of an Egyptian papyrus scroll, with which everyone who has ascended the staircase of the British Museum is familiar, the presiding genius, whose head and extended arms occupy so important a position in the manuscript, being represented by the Dome and lateral Colonnades of the majestic building of the Trocadéro, the divisions of the parallel buildings, which go to make up the many courts and alleys of the Exhibition proper, being the counterpart of the sections into which the dweller by old Nile was wont to break up his curiously constructed memoir. The upper extremity of the great buildings, which are destined to contain the finest display of Industrial Art ever brought together in all the years of Universal Exhibitions, is by a graceful act of our neighbours assigned to England, and here in a hall of colossal proportions will be found a magnificent array, not only of British manufactures properly so-called, but Greater Britain will be represented by such practical resources as her various Colonies can produce, along with the gorgeous industries of her Oriental Empire. This idea of representing the empire at large has been warmly advanced by the president of the British section, H.R.H. the Prince of Wales, who more than ever justifies the hopes of the country, by the able administrative faculty he displays in his assiduous attention to the responsibilities of his office—ably supported by the sympathetic application of Mr. J. Cunliffe Owen, Mr. Gilbert Redgrave,

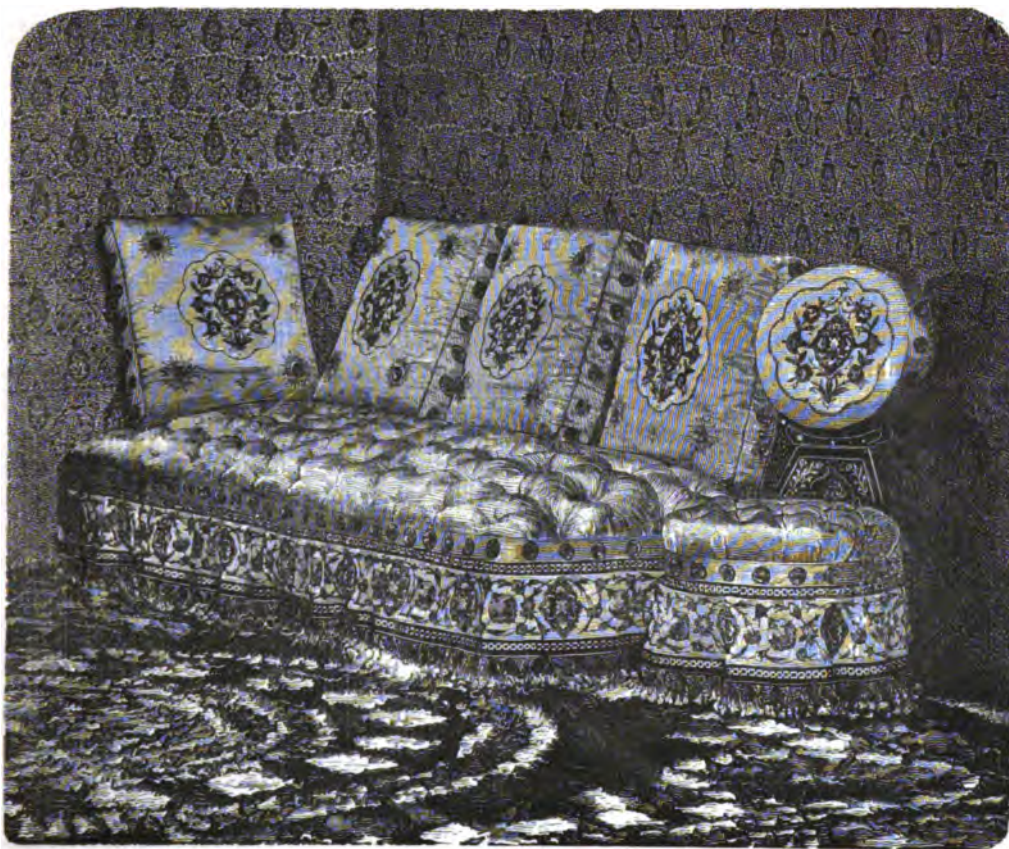
and every other member of the carefully selected staff of officials, who are located in a suitable dwelling in the Avenue Suffren, close to the present main entrance to the building. One is struck with admiration on first examining the details of structure connected with the British Section everywhere, everywhere his admiration springs from the contemplation of the massive details of appropriate ornamental decoration of the surfaces, intended to conceal the necessary heavy masonry, of which the supporting walls and pillars of this merely temporary building are composed. These decorations in panels, etc., are castings in paper and plaster, from plaster of paris moulds of a size altogether exceeding any we had hitherto seen. The fine weather of this year's exceptionally fine spring, contributed evidently in no small degree to the admirable success of such undertakings. Already another very ingenious and most effective device, for the purpose of a top light, has begun to assume an agreeable air of completeness, which from its novelty deserves especial mention. Everyone has noticed how much a glass roof fails in securing for itself any consideration on the score of its beauty or convenience. The crude light transmitted directly through the glass, broken up into lines by the continual repetition of each bar and transverse girder, has always deprived a building depending on top light for its illumination of much of its dignity on the score of architectural beauty.

Mr. J. Cunliffe Owen has succeeded in devising a translucent ceiling, which effectually conceals the structural details of the roof, without intercepting the necessary light; fine textured, pure white cotton sheeting, woven in pieces of unusual width, accurately stretched on framework, serves this purpose admirably, and a finely devised pattern border in blue colour, stencilled on the cloth,

serves admirably as an enrichment for this novel and altogether successful decorative arrangement.

We could multiply these evidences of the practical resources of our commissioners if space permitted; and as the object of the Prince is to press forward all the work he has undertaken to carry out at Paris, so that he may secure the completion of the whole, at least ten days in advance of the opening day, in order that justice may be done to every exhibitor by the press, for this reason the English section is certainly already a month in advance of every other section. This applies also to

up to the roof. There is a large dining room, a drawing room, with a boudoir for the Princess, and a private sitting room for the Prince on the *rez de chaussée*, and several more rooms on the second floor. The house will be actually used for business purposes by the Prince of Wales, and by his secretary, Mr. J. Cunliffe Owen; in his absence certain rooms, if not all, will be thrown open to the public. This really magnificent structure will, in fact, be the "exhibit" of Messrs. Gillow, who have worked out every detail, as at a labour of love. The dining room will be especially remarkable. The walls



DECORATIVE FURNITURE FOR THE PERSIAN PAVILION.

the series of pavilions now being erected in the building, but exposed to the air—in one of the alleys which traverse the structure from end to end. One of these houses, devoted to the Prince, is from a design by Mr. Gilbert Redgrave, architect, and attached to the Commission. The whole cost of this dainty structure has been defrayed at the expense of the Commission, the furniture, the fittings and the entire internal decoration of which have been executed by Messrs. Gillow, from designs made for the express purpose. The style of the exterior is Elizabethan. The entrance-hall is handsome, reaching

are panelled in mosaic wood-work, and the space above the dado will be filled with tapestry depicting episodes from the "Merry Wives of Windsor." Above the fireplace will be a tapestry portrait of her Majesty. This work, as fine as that of the Gobelins, has been executed in the Royal Windsor Tapestry Manufactory, from designs made under the supervision of Mr. Donaldson, by the artists to the firm, Messrs. Henry; and the Royal School of Art Needlework will furnish the drawing room, and the Ladies' Work Society the morning room. Minton will supply the china, and Elkington the silver

repoussé plate; the designs for everything admitted into the house being made by the same clever artists. The most complete harmony will reign throughout the building; there will be no limit to the variety of style, the dining room being Jacobean in character, and the drawing room and boudoir in what is known as the Adam's style, that which was in vogue at the beginning of the present century. For this chamber, the finest specimens of the furniture of that particular period have been faithfully copied in the choicest woods. We propose giving fine engravings of examples of the various articles of furniture in this, and the other pavilions, as they are forwarded to us by the manufacturers, who have already kindly notified to us their intention of supplying us with illustrations similar in character to those already issued in the pages of Industrial Art.

The Belgium section is already beginning to assume an air of progress rapidly approaching final completion. The strong feature of Belgium is undoubtedly the frontage of marble adorned with sculptures executed by the first artists. As there has been some fear expressed respecting the possibility of this work being completed in time for the opening day, it is in contemplation to cover the work with a glazed framework, to enable relays of workmen to continue the work uninterruptedly, night and day, for the next few weeks.

Holland intends making a display of *figurines*, representing Dutch people of the Netherlands, and the Colonies abroad subject to their government. These studies of costume, ably wrought by accomplished artists, will recall the figures of a similar character which were displayed in the Paris Universal Exhibition of 1867, when effigies of the Scandinavian villagers of Denmark, Sweden, and Norway were objects of general admiration.

Although it was not to be expected that Germany would care to submit to such another sweeping denunciation upon the shameless inferiority of her goods manufactured for sale in foreign markets, as she was forced to endure during the Exhibition at Philadelphia, in 1876, at the hands of the German commissioner, who, after a careful survey of the products exhibited, wrote back to his government that the specimens of German art industry then being exhibited in America were *rubbish*—there is no reason to fear that the national vanity will receive such another rebuff on the present occasion, if German artists only are suffered to send forward their works for display, alongside pictures and sculptures produced by their more versatile and ingenious neighbours. The authorities at Berlin have given a somewhat tardy permission to German artists to avail themselves of the opportunity of competing for favour at the forthcoming show.

Amongst the French pictures of the year, we may mention one fine work of the very highest merit, certain to produce a more than passing emotion in the heart of every visitor to Paris in 1878. It is by that great artist M. Detaille, and represents a scene of, perhaps, not unfrequent occurrence during the late Franco-Prussian

war. A gendarme having ridden post haste, evidently, through the darkness of the preceding night, arrives at the grey of dawn at the door of an obscure village inn, where the officers of a French regiment of foot soldiers have taken up their temporary abode. His soldier face, usually stolid and immobile, is lit up with a momentary animation—which is admirably rendered by the artist—whilst he tells the dread news that the “Prussians are coming.” The head of his horse is the picture of distress, caused by over-exertion; the contracted forehead and quick breath striking against the raw air of the morning tells its tale, whilst the freshly-cut and bleeding knees of the jaded screw, prove that he has come by rough roads, devious ways, and short cuts innumerable. But the whole interest does not centre in this foremost figure; every detail of the picture serves to add to the excitement. A young officer, thinking perhaps more of loved friends at home than the near approach of the enemy, listens to the news, and as he listens, fingers nervously at the fastening of his great coat collar. The other figures, equally well-drawn and full of individual character, intensify the interest which centres in the principal actors of this exciting episode. The confusion is rendered still more apparent by the soldiers in the background hastily taking their places in the ranks, and above all, a flight of birds, broken and disordered by the commotion below them, wing their way past the old church spire, which catches the first light of the morning sun. With this notice of M. Detaille's picture, which is a master-piece of thoughtful study and technical skill, we will conclude our notice of the Paris Exhibition for this month.

Every town in the Potteries, with the exception of Fenton, will be represented at the Paris Exhibition. The firm of Adams and Bromley, Victoria Works, Hanley, is going to exhibit jasper, majolica, and Rockingham ware, three specialities for which they hold their own. As one of the three manufacturers who practically have a monopoly of jasper, they purpose making a good show of that beautiful ware. They will show five varieties, including dark blue, light blue, pink, sage, and black. The effect of vases of this beautiful material is quite charming. A good result is obtained by raised figures on a blue ground, something after the style of *pâte-sur-pâte*; this style of jasper is very rich. A very pretty vase—Etruscan in shape—is decorated with oak and ivy foliage in white on a blue ground. Conspicuous in the collection are a pair of solid jasper blue scent-jars or vases 30 inches high. At the foot is a square plinth, supporting a rectangular base, on the sides of which are sunk panels with medallions, the edges of the panels having a tasteful border. This plinth and base are considered master-pieces of pottery. In Rockingham ware they purpose showing some vases, which are certainly perfect in their way. One is a large egg-shaped vase, delicately engraved with a scene representing a stag-hunt. Both foliage and animals are most minutely delineated. Another, which

is said to be absolutely unique, is decorated with ram's heads and oak foliage in white. The *chef-d'œuvre* in this portion of the exhibits seems to be the Stork Vase. This beautiful production is 17 inches high. The engraving represents a stork fishing. To give our readers some idea of the delicate manipulation which has been exercised by the engraver, we may mention that the feathers of the bird, and even the veins of the leaves, are

figures in green. The pedestal fountain, another fine specimen of majolica, is 4 feet high. The vase, or basin, at the top is supported on four female busts, terminating in lions' or dragons' claws. Below these is the perforated pedestal, decorated in colours, one of which is a very pretty shade of lilac. At the foot is a mottled plinth. All these three are modelled by Mr. Thomas. Jardinières, with garden seats to match, will also be shown.



DESIGNS IN GLASS. BY WENTZEL OF Breslau.

most distinctly traced. The most conspicuous objects in the show-case are the majolica exhibits. Occupying the top of the centre is the British Lion. The figure, which is coloured naturally, is about 2 feet high and 4 feet 3 inches long. It represents the King of Beasts in a couchant attitude, but with head erect. Near this is a Cupid fountain, 3 feet 2 inches high. At the top is a large brown and green basin lined with green, supported by a figure of a Cupid in white, and set off with quaint

figures in green. One has a ground of mazarine blue, decorated with oak-leaves and acorns naturally coloured, and supported on three claws. Another is profusely decorated with ears of various kinds of corn. In dessert ware also Messrs. Adams and Bromley, particularly in their well-known stork and lily, and apple and pear sets, make a fine display. The acorn and fish teapots are great curiosities in their way, while the jugs, bread-trays, cheese dishes, and other domestic ware, are sure to command admiration.

ART, LEARNING AND LITERATURE IN VICTORIA, AUSTRALIA.



ATELY we glanced at the national progress of Australia. We do not propose in this paper to make any further allusion to the material progress of Victoria, except in so far as it may be necessary

to the consideration of the subject which we have prefixed to it. We shall only remark that the first settlement at Melbourne took place in 1836, when the population numbered a very few hundreds, and that now, inclusive of the suburbs, it amounts to 270,000, whilst that of the whole colony exceeds 800,000. It thus shows a progress unparalleled in the world.

Until the year 1850 it continued to be a portion of New South Wales, under the name of the district of Port Phillip. In that year it was separated from that colony, and it was constituted by Act of Parliament as the Colony of Victoria. We shall find that one of the first objects to which it turned its nascent energies was the establishment and liberal endowment of art, learning and literature in a manner most creditable to its rulers.

In justice to them we must draw attention to the character of the people. The discovery of gold had drawn to its shores thousands of adventurers from every portion of the world—from Europe, Asia, and America, in addition to which a large influx of the scum of British crime was attracted from the adjacent island of Tasmania, which largely added to the difficulties of the government of that time. If in the chaos of confusion thus caused, the interests of learning and civilisation had been postponed, it would not have caused wonder. But such was not the course resolved upon.

The royal assent to the Bill establishing Victoria as an independent government was given on the 5th of August, 1850. The Act did not come into operation for some months subsequently; the local Act for the foundation of the Melbourne University received the royal assent on January 22nd, 1853, just two years after the real initiation of self-government in the midst of the confusion and excitement caused by the discovery of gold. The

council was appointed in April 1853. The foundation stones both of the University and of the Public Library were laid on the same day in August, 1854. The University buildings were opened in October, 1855, the first matriculation having taken place six months previously. Letters patent from Her Majesty recognizing the degrees conferred by the Melbourne University were granted in March, 1859, and the senate was appointed in 1867. Thus, in a very few years, the whole academic framework was completed.

Many at first were disposed to think that the effort was premature, that at a time when there was not an efficient school in Melbourne, it was absurd to found a university for higher education. The same objection was urged twenty years previously to the appointment of a bishop for the diocese of Melbourne, which then contained only three clergymen. It, however, has resulted in such an increase in their numbers, that it has been found necessary to subdivide the diocese into those of Melbourne and Ballarat, which now employ 152 clergy.

Wiser counsels, however, prevailed, the credit for which must, in a great measure, be awarded to the Right Honourable Hugh Childers, M.P., and Sir Redmond Barry, who from the first took the liveliest interest in the work. The latter was deservedly appointed the first chancellor of the University, and has been re-elected annually for twenty-three consecutive years to that distinguished office. That the views of its founders were correct is proved by the last calendar, in which we find a list of five eminent professors, fourteen lecturers, fifty-four doctors and bachelors of laws, eighty-six doctors and bachelors of medicine, two hundred and six masters and bachelors of arts, and seven hundred and sixty-five undergraduates. Faculties of law and medicine, scholarships, exhibitions, and prizes, many of which are the munificent gifts of individuals, in addition to those provided by the University itself, are enumerated in it.

The act of council by which the University was incorporated, provided it with an endowment of 9000*l.* per annum. At the same time a grant of forty acres of land in the city of Melbourne was issued for its use, and for a site for its buildings, together with sixty acres for the four colleges which it was intended to affiliate to the University, and for the recreation grounds of the students. The whole of these hundred acres has been tastefully planted and laid out, thus being at once an ornament to the city and a resource to

“That learned leisure,
Which in trim gardens takes its pleasure.”

Public money, above 100,000*l.*, has already been devoted to the construction of halls and suitable accommodation. The munificence of Sir Samuel Wilson has provided 30,000*l.* for the building of a large hall, which has not as yet been commenced, and which is intended to be in the Tudor style. More funds will be required to carry out all the plans which have been adopted, but doubtless the same public spirit will afford whatever may be found



ARRANGEMENTS FOR INTERNAL DECORATIONS OF THE SHAH OF PERSIA'S PAVILION, AT THE PARIS EXHIBITION.

to be requisite. The annual revenue, inclusive of the endowment of 9000*l.*, amounts now to 15,178*l.* 12*s.* 10*d.* per annum.

It was resolved from the first that no religious tests should be required, either from officials or students. The University course was to be, and is, purely secular. It was intended that religious education should be provided in the affiliated colleges connected with the leading religious denominations. The Church of England is, as yet, the only body which has availed itself of this privilege by the establishment of Trinity College, to a notice of which we shall return hereafter.

Unlike her sisters of Oxford, Cambridge and London, the Melbourne University is a teacher as well as an examiner, in this respect following closely the example set in Dublin. To this end five distinguished professors were selected in the United Kingdom, to instruct as well as to examine in—1st. Classical and comparative philology and logic. 2. Mathematics pure and mixed. 3. Natural science. 4. History and political economy. 5. Anatomy, physiology, and pathology. In addition to which there are fourteen lecturers. It is quite disencumbered of those questions as to lay or clerical fellowship, which have given rise to so much trouble and discussion in recent parliamentary debates upon the English universities.

As an encouragement and assistance to the students, eight University scholarships have been established of 45*l.* apiece per annum, twelve exhibitions of 30*l.*, and three of 25*l.* a year. There is also a Shakespearian scholarship of 50*l.*, tenable for three years, which is awarded for a knowledge of that author, and of general English literature. An engineering scholarship of 45*l.* tenable for two years has also been founded.

Private liberality has supplemented these handsome provisions. We have the Stawell exhibition for engineering. The sum of 865*l.* having been subscribed as a testimonial to Sir William Foster Stawell, the Chief Justice of Victoria, as a mark of esteem for his services when Attorney-General in 1857, it was in the handsomest manner devoted by him to the endowment of this exhibition. This produces an annual interest of 30*l.* This exhibition is tenable for two years. His Excellency Sir George Bowen, the present governor, also presented 100*l.*, the interest of which is annually expended in a medal or books, known as the Bowen prize, for the knowledge of subjects connected with the history, the institutions, the literature, the jurisprudence, the political economy of the United Kingdom, or any other portion of Her Majesty's dominions. The late Mr. Dwight bequeathed money for the establishment of prizes, of 35*l.* a year for prizes in ancient constitutional and legal history and natural philosophy. Dr. Godfrey Howitt has also founded three scholarships for natural history, two of the annual value of 50*l.*, and a third, of the residue of the income derived from his bequest. These latter have not as yet been in operation, owing to the limitations

in his will. We doubt if any other university of the same age can show more liberal encouragement to learning.

It is proposed that hereafter boarding houses for the residence of the students should be licensed, but it has not as yet been found to be desirable.

We have before said that one portion of this academic education was to be provided by the affiliation of separate colleges. It was expected that the four leading religious denominations would have availed themselves of this privilege. With this object the Church of England has established Trinity College, partly by private subscription, and partly by a loan made by Dr. Perry, late Bishop of Melbourne. This college is not confined to members of that Church, but is open to all who may choose to conform to its rules. It possesses three scholarships of 30*l.*, and two of 30*l.* and 25*l.*, open to the competition of the students. A library of 1200 volumes is also attached to it. This example has not been followed by any other religious body, but probably will be imitated in course of time. To facilitate studies in the University, a library which already contains 9,618 volumes has been collected. These books have been carefully selected, and are of course of a character most adapted to the end proposed. A museum has also been attached to the lecture rooms, which cannot fail to prove of utility. It contains some rare and valuable specimens.

There is one function discharged by the Melbourne University, which we believe is unique. The examinations for the Civil Service are held by it, and for this purpose it sends examiners to the chief towns in the interior, thus saving the candidates from the expense and trouble of a journey to Melbourne. The list of the University is kept open to the public, which has thus a ready means of ascertaining the proficiency of applicants for private employment.

In concluding this brief sketch of this University, we should add that the standard of examination is at least as high as at any of the older foundations in the United Kingdom. We augur for it a bright future, and if the same liberality, enlightenment, and energy, which have hitherto been displayed by its patrons should be continued, it cannot fail, in conjunction with its sister at Sydney, to have a powerful influence in the formation of the mind and taste of a people which is destined to fill a large portion, the fifth continent, of the world.

Primary or elementary education has not been neglected in Victoria. In addition to Trinity College, there is a Church of England Grammar School, with 123 pupils, where a sound education may be obtained. Wesley College has also won a deserved reputation, and educates 271 boys. The Scotch College has likewise realised the hopes of its friends, as is proved by the attendance of 335 scholars. There are also two or three private schools which are well spoken of, but of which we have no particular information. We here only profess to treat of higher education; we shall therefore make no attempt to describe the national system beyond

saying that it is both secular and compulsory. In the private and public schools in 1874 the number receiving instruction was 238,592. As the total population, including an unusual proportion of adults, was only 808,457, this must be looked upon as very satisfactory, and is much to the credit of the government. The annual vote in 1876 was taken for 452,572*l*.

The vote for educational purposes in the United Kingdom is 1,792,201*l*. It follows therefore that this young community, with its small population of 800,000, spends upon education more than a fourth of what is voted for the same purpose in the older country with a population of 30,000,000.

(To be continued.)



INDIAN ART.

THE forms of Indian art workmanship, for the most part traditional, have an excellence of their own on the score of elegance and simplicity which should secure for them a high value amongst our art instructors. In this number we give another example of a water bottle, which resembles, without copying, the former one on page 169, Vol. I. Other forms of water bottles will be figured in the course of these papers, which will go far to prove that utility is more closely allied to beauty of form than some of us were prepared to admit.

It has been remarked that the Hindu artificer has such definite ideas of design, that, however intricate his forms may be, they never interfere in the least with the comfort or personal convenience of the wearer; angular projections rarely occur, curved lines almost invariably suit themselves to the arm or dress of the wearer, if such objects of art are intended for personal adornment; and as nearly every native of India wears ornamental jewellery of some kind, in dealing with the patterns of trinkets the native workman divides his surface into panels. Whenever jewels or precious stones are introduced, these they surround with a deep and strong, but delicately designed border, giving the object a real as well as an apparent strength. The basis of their design is generally derived

from some natural form, as the cup of a flower, a combination of leaves, or stars, etc. These are treated conventionally, but no matter how intricate the detail, the fundamental design is never lost sight of altogether. We have seen a native workman, with no other working tools than a small charcoal fire, a rude hammer, pincers, of possibly European make, but seemingly too clumsy for such work, a few steel punches, and a blow-pipe, seat himself in the verandah or beneath some shade-tree in the compound, and with a few coins of gold or silver for all his stock of metal, he will patiently toil at his elaborate design for hours at a time in patient industry. For two thousand years the plodding goldsmiths have carefully followed in the use of the same patterns. Indian art, writes a skilled Birmingham working goldsmith, is "always the same, always excellent, *but*, the art workman never gets beyond himself. Possibly the genius of his religion keeps him stationary, at any rate he seems to have no desire (though perhaps it is because he has no opportunity) to go forward to still greater excellence. His forms, which are generally curved, may be too frequently bulbous, while the intricacy of his lines forbids any daring forms and precludes any bold flights of fancy. His delicacy becomes occasionally mere artifice, and his love of subtlety in design sometimes degenerates

into mere cunning. Still, in these days of rushing after novelty, regardless of precept or of principle, the poor Hindu workman, with his thoughtful and painstaking labour, deserves more attention than he often gets. If he is incapable of pursuing the highest walks of art, he is still more incapable of the machine-made abominations, of the wretchedly vulgar slipshod work which comes out of many modern workshops in civilised countries, that is dignified with the name of 'jewellery.'

In dealing with precious stones, the Indian jeweller is not at all solicitous that they should enter into the spirit of the general design. We group such valuable things as rubies, emeralds, and diamonds in patterns, to which the goldsmith's work is made to contribute an appropriate setting; in Hindu jewellery the shape or contour is not so much studied, the enamel substructure being considered rather as an aid to the general effect of the precious stones used, than as a subsidiary enrichment. Our workmen select a subdued colour in enamel, like lilac, to set off the lustre of a ruby, the Hindu prefers a red colour with white and black, which he uses without stint, thus possibly depriving the jewel of much of its importance, but saving it from apparent isolation, whilst giving a gayer and livelier effect to the whole ornament of which it forms only a part.

The brilliance of the colours in Indian enamels depends very largely upon the gold they use, being of such high quality (most of it being pure or almost pure); still they gain greater clearness and brilliancy than we attain to in this way.

In the opaque enamels, now being copied by Europeans with success, one form of decoration has come to be highly appreciated by jewellers and even by glass makers and potters amongst us, namely, the scattering of small patches of coloured enamel over the surface of the metal, which gives a fine effect of full and complicated detail to otherwise plain surfaces, as we shall see when we come to describe the new so-called Algerian glass ware, introduced by Mr. John Mortlock, of Oxford Street, and which is shown in some slight degree in the decorations of the objects figured on page 23, vol. II.

VALONEA.

VALONEA holds a position in the foremost rank of tannin-holding vegetable productions employed in the tanning trade, not only in respect of the quantities used, but also as regards its excellence as a tanning material; and yet it is, comparatively speaking, only a short time since its consumption reached anything like the present dimensions. In the countries producing valonea—Greece, the Grecian Archipelago, and Asia

Minor—its use for tanning purposes must have dated from a long time back, but it is only in the course of the present century that it became an article of commerce, when first Italy, and later on England, came forward as purchasers.

Valonea is the name given to the acorn-cups of several kinds of oak which grow in Southern Europe, notably in Greece and Asia Minor. They are of a hollow semi-globular form, and measure in their greatest diameter from half an inch to two inches. The cavity of the cup up to the part on which the acorn sits, is covered with a skin which is clothed with fine hairs, while the outside of the cup is covered with tile-shaped scales lying closely upon each other. The way in which these scales are arranged (Drillot or Trillo, is the name commonly given to them), as well as their size and shape, their specific weight and colour, are the "points" on which the judgment of connoisseurs as to the value of the Valonea is based. If, for instance, the substance of the shell itself be compared with that of the scales covering it, the first is found to be formed of a texture consisting of two kinds of cells, one kind containing tannin, the other kind being perfectly free from it. The texture of the scales, on the contrary, consists of tannin-holding cells alone. As, therefore, the cup itself is constituted of tannin-holding and non-tannin-holding elements, while the scales are formed of tannin-holding cells alone, it follows that the scales must contain more tannin than the shells proper. The degree in which the scales excel the shells in their tannin contents depends very much upon the form of the scales, but this can always be ascertained. Smyrna valonea, from large acorns, and with long, thin, and lean scales contained:—Cups alone (with the scales off) 23·87 per cent. of tannin; scales from the same, 34·60 per cent. Best quality valonea, from middling sized acorns, with thick and fleshy scales:—Cups alone, 30·30 per cent. of tannin; scales from the same, 41·09 per cent. Inferior Smyrna:—Cups alone, 21·06 per cent. of tannin; scales from the same, 30·47 per cent. Smyrna natural:—Cups alone, 24·59 per cent. of tannin; scales from the same, 33·91 per cent. Caramannia:—Cups alone, 20·90 per cent. of tannin; scales from the same, 21·81 per cent.

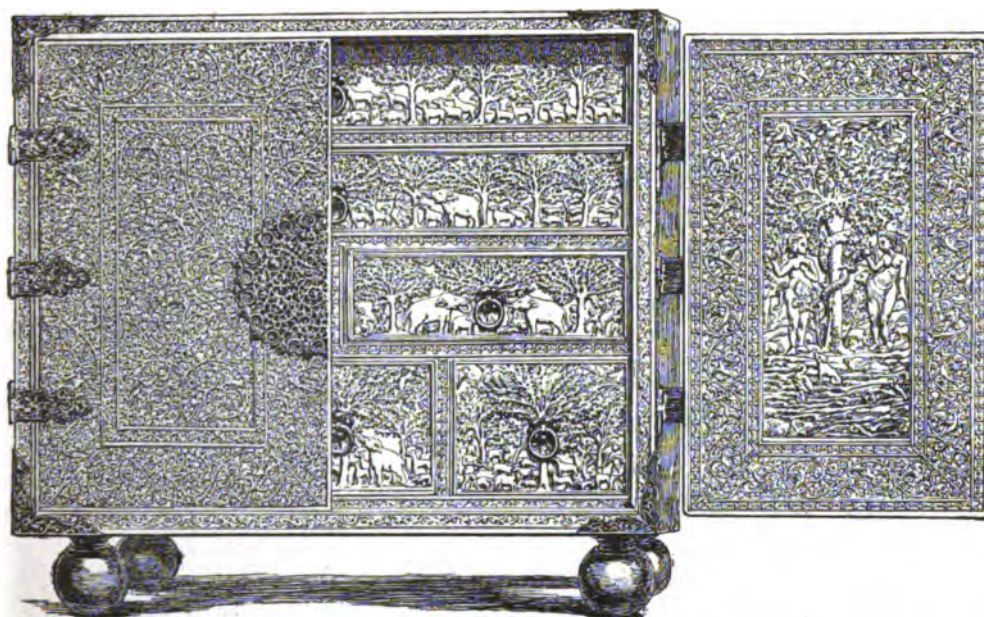
Although, as already remarked, valonea comes from various kinds of oak, three principal types can in the main be fixed upon, through a uniformity in outward shape, and especially in the condition and quality of the scales.

The valonea cups of Asia Minor, and some of the adjacent islands measure more in breadth than in height. The largest diameter of the cup averages $1\frac{3}{8}$ inch, although some superior specimens sometimes turn up measuring as much as $2\frac{1}{4}$ or $2\frac{1}{2}$ inches. The edge of the fruit cup attains a thickness of one-eighth of an inch, although in goods of best quality it is always less. This is not in accordance with the views of practical men, they entertaining the idea that the fruit-cup of good acorns should be thick

and strong. The cups, when of superior quality, are very thin (the thickness reaching about 1-16th of an inch), while the thickness of the layers of scales may be as much as 7-12ths of an inch. It matters not how thin the cup is so long as the scales sit close and thick upon it, and are broad and thick, and when this is the case it is certain we have a good cup before us. The scales are 1-12th of an inch thick in the middle, and from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch broad, and ought not to be more than three-eighths of an inch long. The colour of the scales on fruit of excellent quality is a light green, with a slight inclination towards a reddish tint. This kind of valonea is known collectively under the name of Smyrna valonea; it is, however, sub-divided into several different sorts,

finished an appearance as do the Smyrna goods. It is very difficult, among the many shapes under which the island valoneas present themselves, to take any one of them as a type of the group, and quite impossible to describe singly all the various kinds, which are very numerous; it must, therefore, suffice here to state the names of some of the most important—viz., Golfo, Corfu, Prevesa, Patrasso, Dragomestra, Carawassera, Candia, Dardanelles, etc., etc. Those still holding the acorns are called Camata; and small unripe fruit, which may belong to any of the different kinds, bears the name of Camatina.

The third and most inferior type of valonea is the Albanian, and the difference between this sort and the



IVORY CABINET, WITH CHASED GOLD MOUNTINGS, INDIAN WORK (LOUVRE). FROM JACQUEMART'S "HISTORY OF FURNITURE."

which come upon the market under different names, according to the origin or assortment of the parcels. Those named according to origin are the principal Smyrna sorts, Metilino, Aidin, Aivazik, Demirgik, etc. Those named according to assortment are the kinds called prima, selected best Mezzana fruit; and a secondary quality, *uso inglese* selected, a somewhat inferior article.

The valonea of the Grecian isles, and in part of the Greek mainland, forms the second principal group. In form the cups are similar to the Smyrna kinds; in general, however, they are not so round and regular as the latter; the scales are not arranged so regularly; and in proportion to the cup they are long, and therefore thinner and less fleshy; in a word, they do not present so neat and

previously-described kinds is remarkable. The cups are long in shape, the cavity being in consequence deep, ellipsoidal; the diameter across the middle is in the maximum three-quarters of an inch; the scales are long, fleshless, pointed at the end, and bent outwards in the form of hooks. The value of this sort of valonea is comparatively little.

The tannin-contents of valonea vary with the many different kinds, and range from 20 per cent. up to about 35 per cent., and in a few solitary examples reaching a still higher degree; the latter, however, when found, must not be taken as a sample of a whole parcel, for the cups are very few which attain to such a degree of excellence.

TECHNICAL EDUCATION ON THE CONTINENT.

(Continued from page 72.)

It appeared to be very urgent to create at least *one centre* for technical education in the *Alpine* and the *pre-Alpine districts*, and in this respect *Salzburg* appeared to be the most suitable place where—for a time, at least, provisionally—a technical educational institution should be established during the school year of 1874-75.

Lastly, the Government considered that they should also establish in the territory situated to the south of the capital of the Empire, at least one technical State school, and *Gratz* was selected among *Trieste*, *Görz*, *Marburg*, and *Klagenfurt*, as being the common centre of culture of the German and South Slavo-Italian adjacent countries, embracing an area of about 900 square miles.

Thus the number of newly-to-be-established educational Institutions was fixed at five, viz., at *Prague*, *Reichenberg*, *Pilsen*, *Salzburg*, and *Gratz*.

The execution of this plan was, however, limited to the organisation of one school in the *West*, at *Salzburg*; and one in the *South*, namely, at *Gratz*; and two in *Bohemia*—one *utraqustic* (Hussian), at *Prague*, and one German, at *Reichenberg*; that to be established at *Pilsen* being deferred until the year 1877.

These four educational institutions were organised last year in such a manner that in some *three*, and in some *two groups* of industries should form the subject of instruction in special classes, the combination of these branches being different according to local circumstances. On the whole, *four kinds of subjects* were to be taught in the respective classes, namely:—

- A. *Machine Industry* (embracing metal-work, machine attendance, mounting, modelling, boiler-making, locksmiths' work, engine-driving, millwrights' work, spinning, weaving, etc.).
- B. *Chemical Industry* (including dyeing, bleaching, brewing, druggist business, soap-boiling, tanning, education of foremen for sugar refineries, glass and earthenware factories, spirit refineries, etc.).
- C. *Architecture and Building* (embracing bricklayers' work, stonemasons' work, carpenters' and joiners' works, etc.).
- D. *Ornamental Industry*:—
 - a. in *wood* (cabinet-making, turning, carving, gilding, etc.).
 - b. in *metal* (artificial locksmiths' work, braziers' work, tin-work, chased work, engraving, bronze, gold and silversmiths' work, etc.).
 - c. *Surface decorative art* (paper-hanging, decorative house-painting, book-binding, ornamental writing, etc.).

Of these four different branches, three were to be taught

in separate schools at *Prague*, namely—those for architectural, mechanical (i.e. machine), and ornamental industry; three at *Reichenberg*, viz. architecture and building, mechanics (chiefly machinery), and chemistry; at *Salzburg* and *Gratz* two, namely, architectural and ornamental industry.

In *Prague*, *Salzburg*, and *Gratz*, these institutions were preliminarily to be organised for the instruction of working managers and foremen,* superior schools of science being eventually added to them; whereas, at *Reichenberg* a superior school of science was to be combined with the foremen school from the commencement.

The scientific subjects taught in the "*Werkmeister-Schulen*" (schools for working managers and foremen), as well as in the superior technical and science schools for architecture, machinery, and chemistry, would be the same in both, but the object and method of instruction in each would be in so far different, since, in the first category of schools, chiefly foremen, overseers, master-builders, and principals or managers of small establishments, architects for private and agricultural buildings, should receive instruction; whilst the higher class technical schools of science were to be organised so as to serve the purposes of future manufacturers, directors and inspectors of factories, architects, etc., who are not in a position to go through the long course of study in the *Real Schools*, or the *Polytechnic Schools*. In accordance with the "*Plans of Instruction*" given hereafter, it was resolved to organise *four combinations*, namely:—

- I. "*Höhere Gewerbe-Schulen*," that is, superior, or higher class schools of science and industry:
 1. with special departments for technical instruction in architecture and the science of mechanics;
 2. for architecture, and the science of chemistry.
- II. "*Werkmeister-Schulen*," that is, schools for the instruction of working-managers and foremen:
 1. with separate departments for technical instruction in architecture and mechanics;
 2. for receiving instruction in all branches of the building trade, and ornamental industry.

There was not hitherto any special technical chemical section connected with a "*Werkmeister-Schule*" in all Austria, and the arrangements of the school at *Csernowitz* were, therefore, proposed to be adopted as a guide for the organisation of the technical chemical instruction in the higher school of science at *Reichenberg*, whilst for the same branch of instruction in the working-master (i.e. foreman) schools, a *new* plan had to be adopted, for which purpose the arrangements of the Saxon Royal

* This class of school forms in Austria the medium between the higher Schools of Science and the lower Technical Schools of Industry, which latter are in reality but Technical Sunday and evening Schools (i.e., schools for improvement and special branches of trade); in Germany, on the other hand, the term "*Werkmeister-Schulen*" applies, as a rule, only to Technical Schools for Mechanics and Chemistry.

"Werkmeister-Schule" at *Chemnitz* were chosen as an example suitable for that purpose.

Very urgently required also in Austria were schools for ornamental industry (*Gewerbe-Zeichnen-Schulen*), combined (for saving of expenses) with the classes for the instruction in architecture and the building trade, since

latter at *Reichenberg*) was proved by the fact that for years the technical talent required by the respective Austrian industries—as is particularly supplied by the "Werkmeister" schools of Germany—had to be drawn from abroad, and that hundreds of Austrians have, for a very long time, gone annually to the technical schools of



EBONY CARVED CABINET, WITH SCENES FROM THE LIFE OF SCIPIO, THE MONTHS, ETC. PERIOD OF LOUIS XIII.
FROM JACQUEMART'S "HISTORY OF FURNITURE."

this branch of instruction is represented only in the upper classes of the Art-Industry School of the Austrian National Museum, whereas *lower classes* for that purpose were wanting altogether.

The importance and necessity of the establishment of separate schools for technical machine and chemical industry branches (for the former at *Prague*, for the

the Western States, even to the farthest points of North Germany, for the purpose of acquiring there that professional knowledge, for which no opportunity was offered them in their own country.

Any one visiting the workshops, machine factories, building-yards, railway engineering, and other works, in Austria or Hungary, will be surprised to find that almost all more

important places, such as those of foremen engineers, machinists, etc., are occupied by men from all parts of Germany and Switzerland, but by a very few Austrians, and hence the complaint of Austrian workmen that in industrial establishments, and in the construction of roads and railways, all the best and most profitable posts are filled by foreigners possessed of no capital, but with a first-class education.

Particularly the industries of Bohemia have to draw their supply in technical talent from the northern and western neighbouring countries, and especially from the excellent technical schools in Saxony, which are educating a superabundance of such talent, so that Saxon foremen, machinists, and technologists, find a remunerative field of activity everywhere in Central and Eastern Europe, and especially in Austria. The enormous effect produced by such highly developed technical schools for the mechanical and chemical branches of industry has been manifested in a striking manner in the recent development of German industry, the superiority of which in some kinds of machinery, for instance, the manufacture of locomotive engines, and the extent and quality of production of which has even surpassed that of England, must be attributed in a very large degree to the excellence of those schools which supply the leading scientists and technologists with thousands of specifically trained and educated assistants and artisans, and the great attention which is devoted in many German educational institutions to the science of chemistry has raised the chemical industry of Germany to a height superior at present to that of France and England.

In Saxony, in particular, chemical industry has made wonderful progress, and the influence of the *Werkmeister* and superior technical schools of science at Chemnitz on this state of development is undeniable. But then, these institutions are munificently endowed and supported by the Saxon Government, and for the technical chemical instruction a laboratory has been established at Chemnitz, as scarcely an equal is to be found in Austria in connection with the technical high schools and the universities.

These circumstances are very well known, and appreciated accordingly in the industrial districts of Bohemia, since the sons of manufacturers and tradesmen are sent to the technical and commercial educational institutions of Saxony and Prussia, as is corroborated by the annual lists of attendance at the schools at Chemnitz, Zittau, Leipzig, Goerlitz, etc.

In face of such a state of affairs, and in order to counteract the injurious influences and effects arising from such a condition of things, the Government, assisted by the communities and the chambers of commerce at Prague, Reichenberg, and Gratz, resolved, whilst utilising at the same time the already existing local technical educational institutions at Prague and Gratz, hitherto subsidised by the State, to endow and organise, from the public revenues, educational State institutions for technical

and scientific instruction at those three provincial capitals, and have, besides, already, in March 1875, established at Salzburg a similar institution with considerable success under the directorship of the Vienna architect *Camillo Sitte*, first as a Sunday and evening school, with an attendance of 350 pupils, which, in the autumn of 1876, was enlarged into a regular day school, in which apprentices, journeymen masters and tradesmen received instruction in the various subjects, Salzburg possessing already in the local Museum an excellent collection of educational appliances for the purpose.

The establishments of these four technical educational State institutions involved for the year 1876 an expense of 42,000 florins; namely, *Reichenberg*, 12,000 florins; for the ultraquistic school at *Prague*, 14,000 florins; for *Gratz*, 9000 florins, and for *Salzburg*, 7000 florins—moderate sums when compared with the importance of the educational objects to be attained.

The most difficult question the Government had to solve in connection with the organisation of these new institutions was the engagement of qualified directors and teachers, competent men possessing the necessary scientific, artistic, and practical knowledge being first of all scarce, owing to the great demand for suitable teachers in the neighbouring countries, the authorities of which spare no means to induce the best men, by tempting offers, to enter their service; whilst, on the other hand, the paucity of income hitherto connected with positions of that sort rendered it most difficult to persuade men of superior attainments, and possessed of the necessary scientific and practical knowledge, to exchange a lucrative independent position for a scantily endowed Government appointment.

Acting on the advice of men of experience and authority in such matters, the Government, with a due appreciation of all circumstances, made large concessions by raising the salaries to such a scale as to correspond with that paid to first-class teachers in Germany, and other countries, and by offering additional advantages in the shape of Government pensions, promotions, etc., to candidates for such appointments.

Considering that Austria is still in advance of Germany as regards the *quality* of her art-industry productions, despite foreign rivalry and competition—an advantage which might one day be reversed to the detriment of Austrian industry—and that the measures adopted for promoting the development of art-industry in Germany are as yet sparse, the isolated successes achieved by Nuremberg and Munich, in Stuttgart, Dresden, and on the Rhine, not having succeeded in taking the lead in German industry and becoming the predominant fashion, although it excels in some branches, for instance, in metallurgy and ceramic art, and in the department of illustration, in which Austria is as yet far behind—compared, in particular, with the production of faience and tiles of Metlack, the pottery-wares of Thuringia, the stoves and chimney-pieces of Nuremberg, Dresden, and

Magdeburg, the porcelain of Meissen and Berlin, the manufacture of zinc-goods at Berlin, the ecclesiastical metallurgy of Aix-la-Chapelle and Cologne, and the profane art of metal-working as a characteristic production of the Hartz Mountains;—whilst, as regards the department of illustrations, in respect of which enormous auxiliaries assist the German promoters of art-industry education in the art of engraving, copper-plate printing, xylography, lithography, and chromo-lithography, which form in Germany extensive branches of industry; Austria has nothing to show, neither in quality nor in quantity, by the side of all this, and the productions of Berlin, Leipzig, and Stuttgart—no sacrifice can be too large for Austria to keep pace with, and, if possible, ahead of her competitors and rivals in the domain of art-industry. Such sacrifices, if wisely employed, will form the most productive investment of the State, which will multiply in progressive ratio, and bear abundant harvests of fruit in the future.

Table illustrating the Branch School System of the "Staats-Gewerbe-Schulen" (Government Science Schools, or Colleges of Science and Industry).

I. HÖHERE GEWERBE-SCHULEN.
(Superior Schools of Science and Art.)

A.	B.	C.	D.
Technical Schools for Architecture.	Technical Schools for Engineering and Machinery.	Technical Schools for Chem.stry.	Art-Industry Schools.
(Bautechnische Schulen.)	(Maschinen-technische Schulen.)	(Chemisch-technische Schulen.)	(Kunst-Gewerbe Schulen.)

II. WERKMEISTER-SCHULEN.
(School for working-managers and foremen.)

a.	b.	c.	d.
Technical Schools for the Building Trade.	Technical Schools for Machine Industry.	Technical Schools for Chemical Industry.	Technical Schools for Ornamental Industry.
(Baugewerk Schulen.)	(Maschinen-Gewerbe Schulen.)	(Schulen für Chemische Gewerbe.)	(Schulen für ornamentale Gewerbe.)

According to the different requirements of local industries, several of the higher and lower branch schools may be combined, as is the case, for instance, at the Imperial Schools of Science and Industry at *Csernowitz* and *Bidlitz*, the former consisting of two branch schools, one for Architecture and one for Chemistry (A. and D.), forming a superior school (or college) of Science and Industry (Höhere Gewerbe-Schule), and the latter of two branches (a. and b.), viz., Technical Schools for the Building Trades and for Machine Industry, of the II. Class, or *Werkmeister-Schulen*; whilst at the Imperial School of Science and Industry at *Brünn*, the system is a *mixed* one, consisting of two branches of a superior Gewerbe-Schule, namely, technical Schools for Architecture, and for Engineering and Machinery (I. A. B.), and two branches of a Werkmeister Schule, viz. the technical Schools for the Building Trade, and for Machine Industry (II. a. b.) combined.

In the *new* "Staats-Gewerbe-Schulen" (Imperial Colleges of Science and Industry), the combination is as follows:—

REICHENBERG.

I. Höhere Gewerbe-Schule = three branches:—

A.	B.	C.
Technical School for Architecture.	Technical School for Engineering and Machinery.	Technical School for Chemistry.

II. Werkmeister-Schule = three branches:—

a.	b.	c.
Technical School for the Building Trade.	Technical School for Machine Industry.	Technical School for the Chemical Industries.

Note.—A Technical II. Class School for Ornamental Industry was dispensed with at Reichenberg because of a Technical School for Drawing, already existing, and subsidised by the Government, supplying its place.

PRAGUE.

II. Werkmeister-Schule = three branches:—

a.	b.	c.
Technical School for the Building Trade.	Technical School for Machine Industry.	Technical School for Ornamental Industry.

GRATZ.

II. Werkmeister-Schule = two branches:—

a.	d.
Technical School for the Building Trade.	Technical School for Ornamental Industry.

SALZBURG.

II. Werkmeister-Schule = two branches:—

a.	d.
Technical School for the Building Trade.	Technical School for Ornamental Industry.

CRACOW.

I. Höhere Gewerbe-Schule = three branches:—

A.	B.	C.
Technical School for Architecture.	Technical School for Engineering and Machinery.	Technical School for Chemistry.

The following are the "Plans of Instruction" adopted for the various classes of technical schools and colleges in Austria, which, however, are subject to modification in their details, according to local circumstances and requirements, all these details being here omitted on account of the space they would occupy.

A. PLAN OF INSTRUCTION FOR THE IMPERIAL COLLEGES OF SCIENCE AND INDUSTRY (Höhere Gewerbe-Schulen), being a combination of technical schools for *Architecture* and *Mechanics* (introduced at *Brünn*).

I. OBLIGATORY SUBJECTS.

A. School for Architecture. | B. School for Mechanics.

COMMON SUBJECTS.

I. Annual Course.

1. Mathematics	{ during the winter months . . . 10 hours weekly.
"	summer " . . . 6 " "
2. Descriptive Geometry 9 " "

COMMON SUBJECTS—continued.

3. Physics, in winter 4, in summer 2 hours weekly.
4. Chemistry 4 " "
5. Mechanics, in summer 6 " "
6. German Language 3 " "
7. History and Geography 3 " "

II. Annual Course.

A. School for *Architecture*. | B. School for *Mechanics*.

- | | |
|---|--|
| 1. Mathematics 2 hours weekly. | |
| 2. German Language 3 " " | |
| 3. History and Geography 3 " " | |
| 4. Physics (continuation of I. annual course) 2 " " | |
| 5. Chemical Technology 2 " " | |
| 6. Science of Architecture 13 hours weekly. | 6. Construction of Machinery 15 hours weekly. |
| 7. Theory of Forms 6 " " | 7. Mechanical Technology 3 " " |
| 8. Mechanics 2 " " | 8. Mathematics 2 " " |
| 9. Freehand Drawing from plastic models 6 " " | 9. Mechanics 4 " " |
| | 10. Freehand drawing from machine models 3 " " |

III. Annual Course.

- | | |
|--|--|
| 1. German Language 2 hours weekly. | |
| 2. History and Geography 3 " " | |
| 3. Art of Surveying 2 " " | |
| 4. Science of Architecture 9 hours weekly. | 4. Mechanics 4 hours weekly. |
| 5. History of Architecture 2 " " | 5. Engineering 10 " " |
| 6. Drawing of Plans and Designs 15 " " | 6. Mechanical Technology 3 " " |
| 7. Freehand Drawing, ornamental, from plastic models 6 " " | 7. Machine Drawing 13 " " |
| | 8. Architectural Drawing and Science of Architecture 2 " " |

Note.—The number of the weekly obligatory hours of attendance is, for both schools, thirty-nine in each of the annual courses of instruction.

2. Optional Subjects.

1. Stone-cutting (Masonry) 3 hours weekly in winter.
2. Modelling in clay, plaster of Paris, wood and stone 3 " "
3. Book-keeping, commercial correspondence and counting-house business in general 2 " "

B. PLAN OF INSTRUCTION FOR THE IMPERIAL COLLEGES OF SCIENCE AND INDUSTRY (*Höhere Gewerbe-Schulen*), being a combination of Technical Schools for *Architecture* and *Chemistry* (introduced at *Csernowitz*).

I. OBLIGATORY SUBJECTS.

A. School for *Architecture*. | B. School for *Chemistry*.

COMMON SUBJECTS.

I. Annual Course.

- | | |
|--|--|
| 1. German Language 3 hours weekly. | |
| 2. History and Geography 3 " " | |
| 3. Mathematics 10 " " | in winter, 6 hours weekly in summer. |
| 4. Physics 5 " " | " " " " |
| 5. Mechanics 6 " " | in summer. |
| 6. Freehand Drawing 6 " " | in summer and winter. |
| 7. Chemistry, Inorganic and Organic 13 hrs. wkly. winter and summer. | 7. General Chemistry and Inorganic Chemistry 5 hrs. wkly. winter and summer. |
| 8. Descriptive Geometry 9 " " | 8. Descriptive Geometry 3 " " |
| | 9. Science of Architecture 2 " " |
| | 10. Mineralogy and Geognosy 2 " " |

II. Annual Course.

- | | |
|--|--|
| 1. German Language 3 hours weekly, winter and summer. | |
| 2. History and Geography 2 " " " | |
| 3. Mathematics 2 " " " | |
| 4. Physics (continuation of I. annual course) 2 " " " | |
| 5. Chemical Technology 2 hrs. wkly. winter and summer. | 5. General Chemistry and Organic Chemistry 5 hrs. wkly. in wint. |
| 6. Science of Architecture 2 " " | 6. Technical Chemistry and Chemical Technology 6 hrs. wkly. in sum. |
| 7. Theory of forms 6 " " | |
| 8. Mechanics 2 " " | |
| 9. Freehand Drawing from plastic models 6 " " | 7. Practical experiments in the Chemical Laboratory 26 hrs. wkly. wint. and sum. |
| | 8. Engineering 3 hrs. wkly. in wint. 2 hrs. wkly. in sum. |
| | 9. Mineralogy and Geognosy 2 hrs. wkly. in wint. |
| | 10. Drawing of Architectural Construction 3 hrs. wkly. in wint. 5 hrs. wkly. in sum. |

III. Annual Course.

- | | |
|--|---|
| 1. German Language 2 hours weekly in winter and summer. | |
| 2. History and Geography 3 " " " | |
| 3. The Art of Surveying 2 hrs. wkly. wint. and summer. | 3. Technical Chemistry and Chemical Technology and Metallurgy 6 hrs. wkly. in winter. |
| 4. Science of Architecture 9 " " | 4. Technical Chemistry of the Organic Substances 5 hrs. wkly. in sum. |
| 5. History of Architecture 2 " " | 5. Practical experiments in the Chemical Laboratory 32 hrs. wkly. wint. and summer. |
| 6. Drawing of Plans and Designs 15 " " | 6. Engineering 3 hrs. wkly. in winter 4 hrs. wkly. in sum. |
| 7. Freehand Drawing, ornamental, from plastic models 6 " " | 7. Drawing of Architectural constructions 3 hrs. wkly. wint. and summer. |

Note.—The total number of hours weekly of instruction, in the Technical School for Architecture in all three annual courses, is thirty-nine; in the Technical School for Chemistry, in the first year, thirty-nine, in the second and third years, forty-nine each.

2. Optional Subjects.

1. Stone-cutting (Masonry) 3 hours weekly in winter.
2. Modelling in clay, plaster of Paris, wood, and stone 3 " "
3. Book-keeping, commercial, commerce, and counting-house business in general 2 " "

C. PLAN OF INSTRUCTION FOR WERKMEISTER-SCHULEN (*Schools for Working-managers and Foremen*), being a combination of Technical Schools for *Architecture* and *Mechanics* (introduced at *Brünn*).

I. OBLIGATORY SUBJECTS.

A. School for builder's workmen. | B. School for metal workers.

COMMON SUBJECTS.

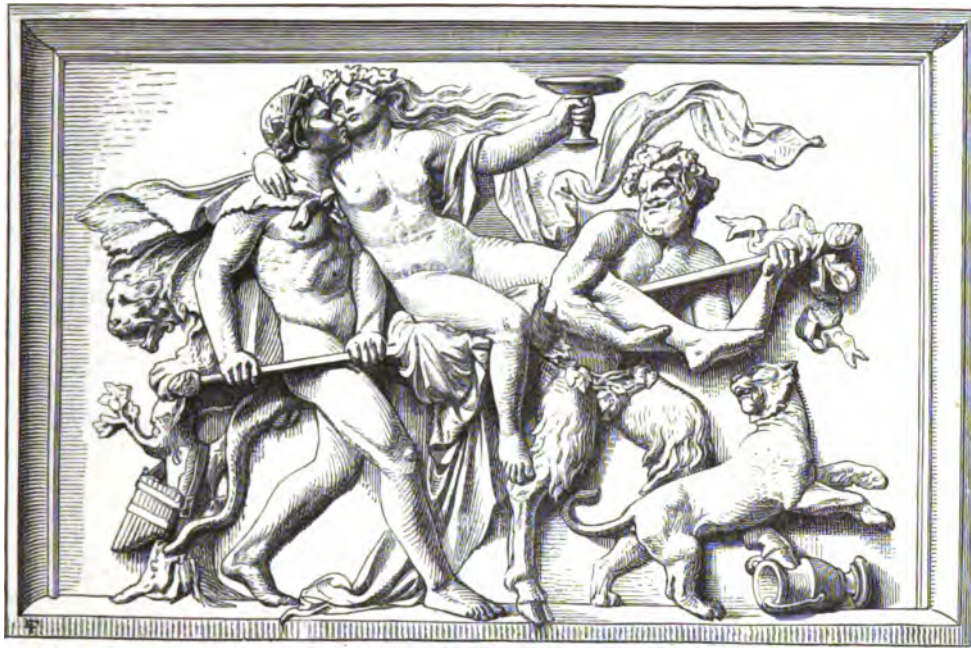
I. Semester.

- | | |
|--|--|
| 1. German Language 4 hours weekly. | |
| 2. Arithmetic 6 " " | |
| 3. Geometry 5 " " | |
| 4. Theory of Projections 10 " " | |
| 5. Freehand Drawing 10 " " | |
| 6. Science of Architecture 4 hours weekly. | 6. Descriptive Engineering 4 hours weekly. |

II. Semester.

- | | |
|--|--|
| 1. German Language 4 hours weekly. | |
| 2. Geometry 4 " " | |
| 3. Natural Philosophy 4 " " | |
| 4. Theory of Projections 6 hours weekly. | 4. Algebra 4 hours weekly. |
| 5. Science of Architecture 13 " " | 5. Descriptive Engineering 7 " " |
| 6. Freehand Drawing 8 " " | 6. Freehand Drawing 6 " " |
| | 7. Machine Drawing 6 " " |

(To be continued.)



REVIEWS.

A History of Furniture. Translated from the French of ALBERT JACQUEMART. Edited by MRS. BURY PALLISER. With numerous illustrations. Chapman and Hall. 1878.

THIS volume, the preface states, is the last work of an accomplished and scientific author, the matured fruits of long study and continuous observation. His son, anxious for his father's fame, has given additional value to the text by the brilliant illustrations with which he has adorned it.

A. Jacquemart was born in 1808, and died in 1875; a Parisian by birth, he witnessed the reward and development of the taste for art which has become the feature of the present generation.

M. Barbet de Jouy describes the condition of art knowledge applied to domestic purposes at the end of the last century as being deplorably attenuated; the Reign of Terror had annihilated the fortunes and dispersed the personal property of the French aristocracy. He attributes the revival and re-awakening of taste in France to Alexander Lenoir and du Sommerard, the custodians of the Museum of French Monuments and the Hôtel Cluny, these two especially. It was the unearthing of the treasures from the ruined houses of Pompeii that first influenced that rage for classic forms in Paris, traces of

which art abound in the pictures and engravings of the period, or the furniture pattern books of the year 1812, invented and designed by Percier and Fontaine. Some time before 1830, the art period of the reformation was once more in favour in France. Charles X. purchased for the Louvre the sculptured furniture, enamels, the Italian and Palissy faiences, collected by the men who were most competent to select; the Duchesse de Berry vied with other equally distinguished collectors in searching among the Paris dealers in curiosities for works of art, not always, however, of the purest taste. Private museums sprung up everywhere, which in time gravitated towards the state institutions, and eventually became absorbed therein, and all this time the patient student, Albert Jacquemart, having access to every atelier, knew how to discriminate between the good and the bad, the genuine and the spurious, the refined outcome of a refined period, and the meretricious combinations which had no real germ of fine art to recommend it. Out of all these comparisons and classifications has come the present volume, which in the original has had a more than usual share of public approval, the illustrations by Jules Jacquemart contributing greatly to the importance of the superb volume; and now we have for the convenience of English readers an equally fine edition by the enterprising publisher. The work, which is admirably printed, is rich in materials for every section of the decorative art-world, as

may be seen by the list of contents, the first book being devoted to the subject of historical furniture, etc., in three chapters; the second book treating of tissues, embroideries, and leather hangings, in four chapters; the third book on objects of art derived from statuary marbles, bronzes, ivories, wood, terra-cottas, and stucco, and the céro-plastic art. The fourth and last book gives the distinguished writer's views upon objects of ornamental art; metal works, iron, gold, jewellery, gems, enamels, glass and ceramics, lacquer and worked leather. The influence of oriental art on the writer throughout the book is very marked, and one cannot help feeling that the author intended to draw the happiest conclusion from his

et argent, paraissait comme un autel consacré à la volupté; un grand paravent immense l'entourait. Le reste de l'ameublement y répondait parfaitement; des consoles et des coins de jaspe des cabinets de la Chine chargés de porcelaines les plus rares, la cheminée garnie de magots à gros ventre de la tournure la plus neuve et la plus bouffonne, des écrans de découpures," etc.

This picture of an interior recalls the influences of oriental art in England at the time of Hogarth, who lost no opportunity of inveighing against the follies of his time in his telling canvases; again, in the chapter on ivories, Jacquemart testifies to the fact that "Indian ornamentation is never wearying; the eye delights," he says, "in



IVORY BOX, WITH GOLD CLASP AND HINGE, ANTIQUE INDIAN WORK. FROM JACQUEMART'S "HISTORY OF FURNITURE."

study of the subject from this special point. Speaking of furniture, he writes: "Of all things, the least difficult to arrange are those of oriental origin; their purity of taste and brilliancy admits of their braving every contact. Francis I. admitted them, notwithstanding his passion for works of the Renaissance; under Louis XIV. the furniture and porcelain of China and Japan were associated with marquetry and bronze, to relieve their severity." Their part in decoration gradually increased in the following reigns, and at the end of the 18th century became dominant, as we may judge of this description of a boudoir taken from "Angola," an Indian story, a work contrary to all probability. Agra (Paris), 1746.

"Un lit de repos, en niche de damas couleur de rose

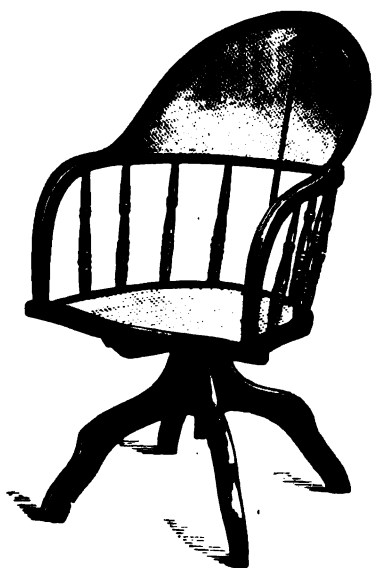
unravelling the endless intricacies of these ingenious conceptions; it fondly lingers over these female figures in impossible attitudes, because the artist has contrived to allow the sense of the supernatural to pervade the composition, so that all becomes easy to deified beings." This work is most instructive, it covers a wide range of artistic thought, suggests the true philosophic method of analysis, and encourages the love of designing from combinations of carefully selected specimens of approved art-types; the book abounds with finely executed engravings, with details sufficiently clearly rendered for every artistic purpose of the workshop and studio. There are four hundred and fifty-nine illustrations of undoubted merit interspersed in its pages of thoughtful letterpress.

NEW INVENTIONS.



WE saw the other day a chair of the most ingenious construction it has ever been our lot to sit in. Its framework, as far as the seat is concerned, is identical with many already in use, and for that matter can be constructed after any pattern; the lower portion is altogether modified, in

order to admit of the improvement of which we speak being applied. This consists of a powerful spring, so arranged that any kind of motion may be secured by the person occupying this novel chair. It is possible to turn in any direction without altering the position of the supports or legs beneath, as well as to sit with the body resting at any angle, the seat yielding in any direction without difficulty or constraint of any kind, whilst the least risk of overturning or overbalancing, by any sudden movement of the body, is perfectly secured by the simplest mechanical means possible.



This novelty, which partakes of the nature of an American rocking-chair, an ordinary easy chair, and the not uncommon carving chair of ordinary life, bids fair to

become a very great favourite in club-rooms and the chambers of those amongst us who are lovers of luxurious bodily comfort. As the workmanship was simple, but first-class of its kind, and as the design, as we have said, can be assimilated to suit any other decorative patterns with which it may be considered convenient to associate it, we anticipate a very universal application of this chair, which has been brought out by that very enterprising caterer for our wants, Mr. Whiteley, of Westbourne Grove.

It has been pointed out that an analogy exists between the phenomena of light and sound in photography and phonography. The fact has long been familiar to the world that the motion alike of light and sound takes the form of waves. The parallel between the number of colours in the prism and the number of notes in the diatonic scale is also well known. The seven colours of the spectrum consist of three which may be considered strictly primary, and four more which are composed of those three in certain combinations. The seven notes in the musical gamut—the eighth being virtually a repetition of the first—are, in precisely the same manner, formed of three radical tones and four produced by variously combining these. An actinic ray from the sun fixes the image of an object reflected on a prepared surface, and by the phonograph sounds can be accurately impressed on a sheet of tinfoil or a thin layer of copper, stereotyped, if desired, and reproduced as often as may be deemed agreeable with audible distinctness. Babbage, who firmly believed that, according to the principle of mechanical reaction, the atmosphere retained every impression made upon it by the human voice, eloquently describes the air as “one vast library on whose pages are for ever written all that man has ever said or woman whispered.” It may be thought that such ethereal mathematics carry dynamic agency to trackless issues. But the phonograph is no hypothetical creation. It is a veritable machine whose operations are as definite and trustworthy as those of the telegraph or the telephone. Like the latter instrument, this latest scientific novelty is of American origin, and was invented by Mr. Thomas Alva Edison, to whom the world is also indebted for the automatic and quadruplex system of telegraphy. The phonograph, in its latest and most improved form, consists of a brass cylinder in the proportion of four inches diameter to a foot in length, having a spiral groove cut in it from end to end. Round the cylinder—which can be rotated on a screwed horizontal axis by a winch-handle—is placed a sheet of ordinary tinfoil or thin layer of copper, and in contact with that surface is the point of a small steel pin projecting from the centre of a thin metallic diaphragm, at the bottom of a short tube or mouthpiece. The mouthpiece and the disc at the lower end of it are in the same relative positions as in the telephone. A word spoken into the mouthpiece of the phonograph necessarily imparts vibration to the metallic

diaphragm or tympanum of the instrument, and also to the steel pin attached to it, and thus the sheet of tinfoil becomes indented by the revolution of the cylinder and the movement of the pin. The screwed bearing in the axis is of equal dimensions with the groove in the circumference of the cylinder; and when it is made to revolve, the point of the vibrating style or pin describes spiral lines of tiny marks on that portion of the tinfoil which is laid over the groove. The cylinder is moved backwards and forwards by the joint action of the winch-handle and the screw. Consequently that portion of the tinfoil immediately under the style and immediately over the groove, being without solid support, readily yields to the pressure of the style and to the influence of the vibrations communicated to it by the voice of the speaker when the cylinder is turned. The crank winch-handle is, of course, kept in motion while sound continues to enter the mouthpiece, and the elevations and depressions produced on the tinfoil by the vibrations of the metallic membrane and style answer with undeviating exactness to the various modulations of the speaker's voice. A rough pasteboard trumpet is held to the mouthpiece for the purpose of rendering back the vibrations symbolically embossed on the receiving surface, and this process of reproducing uttered words from the instrument is effected simply by reversing the movement of the axis until the first of the traced impressions is placed under the steel pin. A forward movement of the winch-handle, as before, will now reproduce the identical sounds addressed to the mouthpiece, with every minute variety of cadence. The rate of utterance is regulated by the quick or slow revolution of the crank. The songs rendered by the phonograph at the meeting of the Society of Telegraphic Engineers are reported to have been encored, and the audience stood while the National Anthem was mechanically executed. Before the Physical Society also the remarkable feat was achieved of reproducing a duet song through a double mouthpiece. Mr. Edison is, moreover, said to have lately succeeded, by extending the application of the phonographic principle, in constructing a clock which, instead of striking the hours, announces them in a human voice, and adds appropriate remarks.

NOTES.

THE CATALOGUE work of the Paris Exhibition is now nearly complete, there being already 25,000 French and 15,000 foreign entries. The entries will not be quite so curt as usual in such cases, as there is a volume of the catalogue for each group, twelve in all.

THE FIRST industrial exhibition opened to Parisian sight-seers was in 1798. In that year, a shed, erected in the

court of the Louvre, partially filled with articles described in a catalogue of twenty-four pages—twenty silver medals and one single gold medal promised to the manufacturers who should deal the heaviest blow to English trade—was the beginning of an institution since adopted by the whole civilised world. Native industry was, however, alone represented in the French Exhibition of 1798. A proposal was, indeed, made in 1849 that foreign products should be represented in the Paris Exhibition of that year; but the Minister of Commerce of the day was persuaded that such a project could only emanate from the enemies of French industry, and the suggestion fell to the ground. From the time that in 1851 England acted on this broader principle, industrial exhibitions have increased in splendour and attractiveness. At London, in 1851, there were 13,917 exhibitors, 6,039,195 visitors, and the exhibition was open for 141 days; at Paris, in 1855, 23,954 exhibitors, 5,162,330 visitors, 200 days; at London, in 1862, 28,653 exhibitors, 6,211,103 visitors, 171 days; at Paris, in 1867, 50,226 exhibitors, 10,200,000 visitors, 210 days; at Vienna, in 1873, 42,584 exhibitors, 7,254,687 visitors, 186 days; and at Philadelphia, in 1876, 9,857,625 visitors, 159 days.

M. GASTON PLANTÉ has communicated to the French Academy of Sciences a process of engraving on glass and crystal by means of electricity. The process consists in covering the plate to be engraved with a concentrated solution of nitrate of potash, put in connection with one of the poles of the battery, and in tracing out the designs with a fine platinum point connected to the other pole. The results are said to be of marvellous delicacy. The battery employed by M. Planté was composed of fifty or sixty secondary elements. Round articles can be engraved by adding gum to the solution to make it adhere.

ARRANGEMENTS are being made for holding an International Exhibition at Sydney in 1879, under the auspices of the Agricultural Society of New South Wales. It is anticipated that many of the articles shown at the coming Paris Exhibition will be trans-shipped to Sydney.

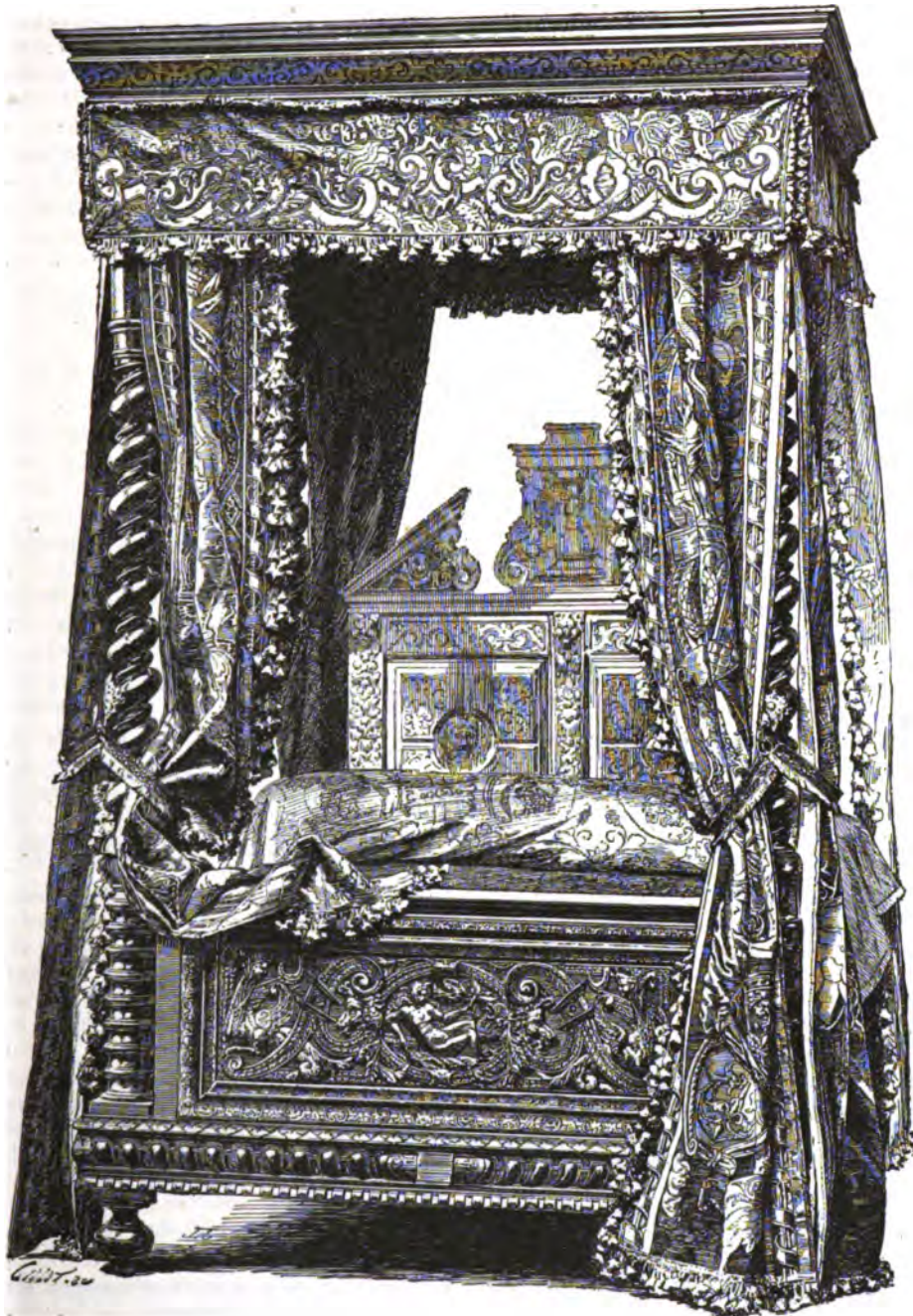
THE SANITARY Institute of Great Britain will hold its second Autumn Congress and Exhibition of Sanitary Appliances and Household Economics in Stafford, by invitation of the Mayor and Corporation. The exhibition will be opened officially by the Worshipful the Mayor of Stafford, on Wednesday, October 2nd, 1878. The Congress will be opened on the same day by Edwin Chadwick, Esq., C.B., president of the Congress.

THE LONDON agent for the manufacture of the very beautiful Irish porcelain, known as Belleek china, writing to a contemporary, complains of a slip he made.

"Belleek-ware is a new and very pretty ware for ornamental purposes, which has the exquisite delicacy and finish of mother-of-pearl. Its glaze is so brilliant that it is iridescent, while its lustre is that of fine glass. It is not transparent, but it has the effect of transparency from the delicacy of its tints and the perfect polish of its glaze."

Now, sir, as the works at Belleek supply considerable quantities of goods of various kinds for the trade of which your journal is the first and special organ, I should take it as a great favour if you would permit me to correct the phrase, "It is not transparent," by a short statement of facts that I trust will be as clear as the ware in question is itself translucent.

The composition of Belleek china is as pure a porcelain as the Japanese or any other real china, and widely different



STATE BED OF OAK, VALANCE AND COUNTERPANE OF SILK, WITH APPLIQUÉ WORK AND BRAIDING, CURTAINS OF BRUSSELS TAPESTRY. PERIOD OF LOUIS XIII.

from the factitious bone-china body of the English make, fifty per cent. of the same being calcined bone; hence its tendency to "fly" with hot water—a result due to the phosphate of lime not being able to withstand the sudden alternation of heat and cold. The Belleek china, on the other hand, is a pure felspathic china, containing nothing but Irish felspar and china-clay, consequently eminently transparent. Large deposits of the spar are obtainable from the townlands adjoining the Belleek Works, therefore we have the supply of that element perfectly under our own control.

The fracture of the Belleek china is quite vitreous, whilst that of the factitious or bone-body china resembles loaf-sugar; and from the well-known inability of phosphoric acid to flux, or act on the silica in clay and stone used in the body, the atoms of silica remain like a plum-pudding stone instead of being one homogeneous mass, such as the Belleek china is. In fact, from the quantity of bone in the English china, nearly every specimen of it can be dissolved by boiling it in nitric acid, whilst no acid, the fluoric alone excepted, has any action on the Belleek china.

A COMMERCIAL museum is being formed in Paris, where the public will find samples of raw materials from all parts of the world, and samples of articles produced therefrom by industry. All products are to be classified systematically, so that men of science, merchants, manufacturers, and amateurs can make easy inspections. The places from whence the material comes, where manufactured and sold, where and for what used, prices, and other information, are to be added on cards attached to the objects. Connected with this museum will be a library and lecture-room where lectures are to be given referring to the materials contained in the museum. This excellent idea is due to the Geographical and Commercial Society of Paris.

MANY alloys of tin and other soft metals hardened by addition of antimony, copper, etc., do not give a clear tone on being struck, but a lead-like dull one. It has been found by M. Lilliman that the power of sounding clearly may be imparted to them, by immersing them for a half to one minute in a paraffine or oil bath, heated to a temperature 5° to 5·5° below the boiling point, then taking out and allowing to cool. This does not produce any diminution of density, but a considerable increase of the hardness and rigidity.

ACCORDING to the *Bien Public*, a trial of a new invention for the prevention of railway accidents is about to be made at Marseilles. The invention consists of an electric reflector placed at every station, to show the station-masters the exact position of the train at any point of the journey. As the majority of railway accidents are caused by irregularity in the starting or arrival of trains, the instrument professes to enable the station-masters to always see on what part of the line the train may be.

THE LOUVRE gallery of casts from the antique has just received a most valuable addition in the contributions lately received from the ruins of Olympia, discovered during the recent explorations. These casts continue the series brought to France in 1829 by the scientific expedition to the Morea, which terminated its labours in that year. It is a pity that England, always foremost in such undertakings formerly, has of late years manifested but little interest in the formation of such galleries of ancient art as we see springing up everywhere on the continent and in America.

LIST OF ILLUSTRATIONS.

	PAGE
Panel containing three specimens of ancient Norse pottery, from the National Museum at Copenhagen, and "a Valkyrier, or 'shield-maiden,' of the Norwegian mythology, who invisibly attends a warrior till the moment of his fall, watches over his earthly career, then becoming visible to him and all around him, is for evermore his cup-bearer in the presence of Odin." This fine statue is by the sculptor Bissen, a favourite pupil of Thorwaldsen	93
Large casket of ebony, box-wood, and cedar, 16th century work	95
Jardinière in gilt bronze, of similar character to other works of the same kind already figured in these pages. Designed by H. C. Entwulf, of Vienna	99
Finely wrought modern glass jug and cup, in chased silver mountings, from old designs of the 16th century. By F. Schmidt, of Vienna	101
Finely wrought electro silver Tazza, from the Elkington works, Birmingham	102
Details of finely wrought Persian manufactured cloths, damasks, silk and gold embroidery, and rich carpets, such as will be found in the Persian pavilion of the Paris Exhibition	103
Specimens of finely cut glass-ware of the approved forms in general use on the Continent. Designed by Wentzel, of Breslau	105
Initial letter L from a work printed at Mayence in the 16th century	106
Arrangements for the upholstery of the interior of one of the reception rooms of the Persian pavilion, erected in front of the Trocadéro, at Paris. The hangings are in gold and fine silk embroidery, the carpets of pure Persian design and most harmonious in colour	107
Indian tea-service and water-bottle of the conventional type in fine metal and earthenware, the design of one tea-pot being greatly influenced by European suggestions, to its great detriment as a work of art	109
The lovely ivory cabinet, with its rich gold ornaments, is a fine example of European art requirements embodied in earlier conventional methods of treatment. The Scripture subjects introduced in the work may have had their origin in the design furnished by the Spanish or Portuguese conquerors of the locality where the cabinet was made by native workmen	111
The ebony cabinet, divided into two portions (the lower being a press, the upper a receptacle for drawers), is of the very purest style of the art of the period of Louis XIII. The scenes, in delicate carving, are taken from the life of Scipio, and the lesser ones are typical of the months of the year. This fine work is copied from the English edition of Jacquemart's "History of Furniture" by permission of the publishers, Messrs. Chapman and Hall	113
Panel representing a Bacchanal procession in <i>bas relief</i> , from the famous work by Kundmann	117
Ivory carved box of Indian antique manufacture, with gold hinge; also from Jacquemart's "History of Furniture"	118
Easy rocking and rotating chair, in two aspects	119
End view of state bed of carved oak, with glorious hangings of Brussels tapestry; the footboard of fine carved wood, the counterpane of fine appliqué work and braid. This work belongs to the period of Louis XIII., and is copied by the distinguished French artist, J. Jacquemart, for illustrating his father's "History of Furniture" noticed in this number	121



"All Decorative Art not based on Fine Art is and ever will be unworthy the name of Industrial Art altogether."—B. R. HAYDON.

ART AND ARTISTS.



but perhaps the most curious phenomenon of all—especially to those who have not given much care and time to the subject—is the fact that the chief prophets of the age, from whose creations the rules of the critic are drawn, are, of all their contemporaries (with few exceptions), the least capable of condensing into a few lucid abstract sentences the principles on which they work, and the objects they wish to obtain. The Socrates of Plato long ago noted this evident paradox, and gave reasons for it anything but flattering to the painters, poets, and sculptors to whom he had recourse for enlightenment.

Probably not a single eminent artist or writer would venture to dispute the fact in print, however much he might be inclined in private to override by the weight of his authority any inopportune or presumptuous criticism. Nevertheless, the temptation is so great to leave the sphere of incorporate and complex ideals for the apparently more precise region of abstract definition, that scarcely anyone possessed of the faculty of expression can hold himself back from laying down rules; which rules are frequently so flagrantly opposed to the practice

of the speaker or writer, that they not seldom bring down a storm of ridicule from those who, though little apt to produce anything themselves, have yet disciplined their minds to the special task of weighing and judging the acts and words of others.

This mania for making rigid rules and erecting eternal standards for the limitation of every art, thought, or creed, is perhaps more rife at this day than ever before. And this, because the age is more distinctively metaphysical and scientific than creative and individual; and because an absurdly disproportionate weight is attached to the mere grammar and logic of art, dry bones which can never be vivified, and only serve to teach the anatomist the internal proportions of the living organisms growing up around him.

Statesmen (who may be defined as artists in a similar sense with actors), novelists, painters—the whole generation of those whose work is concerned with living flesh and blood, or in those forms of inanimate nature which run parallel, periodically afflict us with a set of dicta as uncompromising as the Law of Moses; and supported by the reputation they bring to their task, are frequently cried up in sober earnest as the teachers of whom we have so much need.

Now it seems to us that the evil is a very real one, and that it has its root in an unhealthy tone in the minds of the generation—a tone, the fruits of which are evident in the lamentable profusion of those art productions, which are evidently not the result of the *feeling* of the artist, but of a series of acquired intellectual impressions, and are therefore as inane and impotent as the wrath or passion of a man who deliberately gets angry, or falls in love, strictly on principle.

The age, indeed, does need guidance, and at the

hands of its statesmen, poets and artists too; but they should guide as what they are and not as what they are not. Life is the supremest of things, and the chiefest thing in life and art is *example*: criticism is but a handmaid, and it will, indeed, be a sign of regeneration when we find distinguished men less ready to descend, in the belief that they are ascending, and the public less hungry for forms of words or heterogeneous ideals, and more eager for plastic realities.

We have been led into these reflections by the perusal of a series of letters recently addressed to one of the daily newspapers by a writer whom we all delight to honour. Under the title of "The Coming Man," Mr. Charles Reade, the genial author of "Griffith Gaunt," and

youngest—he takes occasion to descant upon the innumerable errors bequeathed to us by the infant world, which we, in our perversity and pedantry, refuse to discard, though already sufficiently enlightened to free ourselves by a simple effort of will. Touching lightly on various subjects, such as the healthiest mode of eating—which in his opinion is that adopted by the brute creation, of masticating and swallowing with the saliva, and drinking afterwards, a matter he also connects with the "infant world" and its aberrations—he passes on to the *pièce de résistance* of his literary banquet, and declaims in no measured terms against the rooted blindness and folly which, in his opinion, have perpetuated a distinction between the value of the right and left arms.



BLACKBERRYING, A PAINTING ON CHINA. BY MRS. SPARKS.

of so many other brilliant novels, has made a violent attack, firstly, on an antiquity which is generally more revered as it is the better understood, and in the second place, as a branch of the same subject, on a custom as universal now as at all known periods of history, that, namely, of bestowing especial favour on the right hand in preference to the left.

No apology can be needed for the discussion of such a subject in a journal devoted to Industrial Art; inasmuch as anything bearing upon the workman's chief tool—his hands—must be of deepest interest.

To do Mr. Reade justice, we must briefly summarise his position and arguments.

Starting from a saying of Bacon's, to the effect that the latest generations of men must be the oldest—not the

To prove his thesis, that the left is by nature the equal of the right, he adduces a considerable mass of evidence, partly collected by himself, to which we could not deny the merit of possessing interest, if it were not brought forward for a purpose to which we shall presently urge our objection. Gymnasts, pugilists and musicians are passed in review, and in each case it is pretty fairly proved that when the incentive is present, the left can be made equally available with the right. Only to the opacity of pagan perception, to the unbending and unreasoning prejudices of an infantile and undeveloped intellect, could, he concludes, the perversion be owing by which our bodies are deprived of the native grace and ease of motion with which we are familiar in animals. "Lopsidedness" is the term he bestows upon the

carriage of the right-handed man, and he declaims fiercely against the nurse and mother who, mechanically obeying a custom of which neither they nor anyone else has inquired the reason, deform with patient and effective tyranny the plastic body of the child.

This reasoning is a fair specimen of the crudity and insufficiency of the abstract teaching with which creative artists generally favour us. Mr. Reade's emotions have been roused by the contemplation of the beauty of form; analogy on analogy has suggested itself, and as the result we have a most revolutionary proposal, in which no account whatever is taken of the difference between the development of the individual on a plan approved by

the analogy of the man and the child, at once concludes that therefore the age is not merely older, *but wiser*, a deduction not included in the premises in any way. Bacon's saying, indeed, is a mere Elizabethan quibble. Europe, emerging from the dark ages, rightly looked upon the Greeks and Romans as teachers, inasmuch as, though earlier in point of time, they achieved a civilisation so perfect, that it is still a moot question with scholars whether even the foremost among later nations can rival them. In this sense, they were elder in wisdom than the semi-barbarians who took their place in Europe, and in this sense, also, the inhabitant of modern Athens is younger and less developed than the denizens of that



VASES. DESIGNED BY M. BRACQUEMOND FOR HAVILAND FAIENCE.

Mr. Reade, and that which is necessitated by the great distinctive feature of civilised life, namely, *the limitation of individuality for common ends*.

No hint is even given of this broader view of the subject: Bacon's play upon words is treated as a sufficient basis whereon to found a claim for the superiority of this generation over those that have preceded it, and in this generation all Mr. Reade's special predilections and fancies culminate; which indeed would rightly be the case were the appeal made to feeling and not to reason.

Let us consider what is really advanced. In the first place, this age is older than the preceding because it comes later. On this statement, the artist mind, flying to

ancient city, and very properly looks back to them for guidance.

Even if *we* have indeed made great scientific progress of late, it must not be forgotten that art in the form of poetry, sculpture, etc., is of infinitely greater significance than the mere mechanical adaptations of natural forces to our needs; and till we can boast that we can absolutely excel what the Greeks achieved, we must at least admit that long vanished people as an equal, and hesitate before condemning any rooted custom which had their sanction.

It is true that much good was wrought by the Romantic School, but the rebellion of its leaders was

rather against slavish imitation than against the authority of the ancients themselves: and if this school did originate myriad absurdities in all the Arts, this was due to the enthusiasm of undisciplined minds, who did not comprehend the real scope of the new doctrines, and were carried too far by partial success at the outset. *In Art the past cannot be discarded.* Individuality must bow to tradition, and mould itself accordingly before it can exert its full force; otherwise, artistic effort would be as meaningless and discordant as the jabber of lunatics.

In advocating the perfection of the human body in harmony with the development of the brute creation, Mr. Reade is attempting to lead us on one of those bye-paths which seem to point the way to worlds of fresh beauty, but which in reality land the luckless wanderer in a sterile and trackless desert. No gain whatever, but a positive loss, would result if we did attain the instinctive grace of the tiger, inasmuch as we should have to sacrifice those characteristics which denote and are the cause of our superiority. Natural poetry, the unconstrained utterance of Nature, was for many years the constant demand of the Romanticists, and as long as natural poetry was understood to mean the utterance of feeling, which, unprompted by a servile and apish spirit, imperiously demanded expression, the demand bore the richest fruit; but when it came to mean the abandonment of form and the sacrifice of reason to the crotchets of brain-sick verse-mongers, it proved to be to the artist nothing but a plague and a pitfall.

Mr. Reade is quite right in admiring beauty of motion and completeness of physical development, but he should have gone one step farther when demanding an equal education and exercise of either hand. The foot is not merely by nature the flat stump on which we walk; it is prehensile, and instances are not wanting of artists who have successfully wielded the brush with their toes when deprived by nature or accident of the use of their hands. Connected with the ear, also, there are muscles which, resolutely exercised, enable us to approximate the backward and forward movements so valuable to the lower animals. If, however, our ideal be to rival the lower animals, foot and ear should equally, with the left hand and arm, be trained to their full capacity, and indeed, if we mistake not, we have once lighted on such a contention in the writings of a pupil of the Romanticists.

Mr. Reade himself might, even at his age, give practical adhesion to his ideal by wearing boots without heels, in the fashion of Greek or Albanian mountaineers, whose round and smooth movement in walking is the theme of every observer.

But, as he would soon discover, it is with the use of the heel as with the degradation of the foot—a small sacrifice has been made to secure a great gain. The Greeks cannot wear heels, however much they might desire to do so, because they would inevitably trip them

up on the ground they have to traverse, while we use them because civilisation has given us level roads, on which we can fully avail ourselves of the additional purchase afforded by them. In the same way, we leave untrained the prehensile muscle of the foot, because, even had we the skill of the monkey, it would not be of the slightest value to us: we do not need to climb trees in search of food or safety, and even if we did, our hands—aided by mechanical means—are fully sufficient for the purpose. And even if we do lose something of grace and free play in the lower limbs, we are nevertheless richer in the fact that our bodies are better adapted to the necessities of social existence. That we never exert the muscles of the ear, is equally due to the fact that in civilised life we do not require to focus faint sounds, as is the case with the limited savage, or the beast of prey.

Mr. Reade is probably right (in spite of the "Anatomical Ass" whom he mentions) in his contention that the left side of the body is potentially equal to the right; but he has assuredly not reflected on the consequences which would follow the reform he advocates. Just as we can dispense with some of the capacities of the foot or ear, so, in civilisation, one arm and one hand suffice for many of the most important and *lucrative* occupations; and, speaking generally, the strain of all manual labour in a *social* state falls more on one limb than the other. Though we may admit that, in individual cases, it is a matter of no import which hand have preference given to it, we are compelled to say, that general concordance of custom is a necessity amongst the members of a community. It is of no moment to the public whether the present writer hold his pen in the right or the left hand, but when we come to organised labour, the case is otherwise. Let Mr. Reade enter a schoolroom when the children are engaged on a writing task and tell some of them to transfer their pens to their left hands; the confusion and elbowing which would ensue would assuredly modify his opinion of the tyranny of mothers and nurses. True, in this case, the evil might be remedied by increased accommodation, but let us imagine such a principle applied to the Army. As in writing, so in the manipulation of fire-arms, the chief labour falls on one hand: were soldiers habituated to use either indifferently, it might indeed be convenient at times to the individual, but in the matter of drill it would not merely necessitate a double training, but would produce inextricable confusion in the ranks. A hundred other instances might be cited of the practical advantage of universal agreement in this matter, and our readers will have no difficulty in supplying them.

In the great stress he lays upon the left arm in boxing, Mr. Reade would almost seem to imply that it and not the right is entitled to preference, and that of course would be a new question. It seems strange to us, however, that the evident origin of the custom

of using the left for striking should have escaped one so familiar with athletics. Untrained men in a fight naturally use the stronger arm and hand, and in so doing, expose themselves to left handed blows, which constitute almost the whole art of boxing. Evidently, not on account of any intrinsic superiority of the left, but to gain the advantage over those accustomed to use

left in pugilism is evidently a mere trick for special purposes, and for one of much less utility than Mr. Reade seems inclined to ascribe to it. Both boxing and fencing are artificial exercises which owe their effectiveness to certain social conventions. This is especially true of pugilism, for let the strict rules which govern the bruising art be once set aside, and an



CHEST OF EBONY, CARVINGS INLAID WITH GILT BRONZE AND SILVER WORK.

the right, did the usage grow up. In the German student duels, when a strong fencer is matched against a weak one, the latter is often permitted to wield the sword with the left, the awkwardness felt by his antagonist in parrying blows from an unaccustomed quarter being considered as counterbalancing his superior power and skill. The use, then, made of the

untrained man of sufficient strength and courage can, either by kicking or grappling, easily place himself upon an equality with a professional gladiator.

If the value of the left is to be illustrated convincingly, Mr. Reade's examples should be drawn either from actions necessary in the savage state, or from the use frequently made of it in the *industrial arts*. The case

of the weaver mentioned by him is thoroughly to the point, and doubtless many such could be quoted; but, even if pages could be filled with them, they are, and must remain, exceptions. Civilisation, while more complex as a whole than barbarism, simplifies and facilitates the action of the individual: the workman has neither time, inclination, nor necessity for the equal development of every portion of his frame. He labours for his bread, and if, by making one hand and arm fit to use hammer, hatchet, or saw, he gains as much as would be obtainable by the joint action of hands and feet together, such acquired adaptation would be but pure waste, and only have the significance of a pedantic extravagance in the expenditure of force.

In a word, carrying Mr. Reade's contention to the extreme, what should we possess? The hair of a man is as beautiful as that of a woman; but reasons as practical as those which guide us in the management of feet and hands, demand that it be kept short. Let us suppose, however, that some Romanticist or disciple of Mr. Reade's should produce for us an either-handed being, with flowing mane, prehensile feet, and mobile ears, what name should we apply to the type? Assuredly to the ordinary intelligence the word "savage" would suggest itself, instead of "Coming Man." If indeed the latter is to appear as such a restoration of a remote past, then Rousseau's theories have taken a deeper hold on mankind than we had thought, and barbarism is truly the goal to which we are tending.

The broad issues we have placed before our readers indicate our reason for subjecting Mr. Reade to such keen criticism. No worse service could be rendered to a generation eagerly striving to produce the masterpieces of civilisation than to have false ideas of perfection dangled before them by men of such brilliant parts as Mr. Reade. Instead of making light of the cultured past, the duty of those who are capable of guiding opinion, is to illustrate the transcendent worth of much that appears meaningless and of no account to the uneducated of all classes. The fault of our age is rather lack of reverence than its excess: we question everything, from the existence of deity downwards, and we apply the Baconian tests on which Mr. Reade insists to matters to which that philosopher would certainly have deemed them inapplicable. With what sad results this spirit of negation is fraught, anyone can realise who walks through a modern art gallery or examines attentively specimens of the ornamental workmanship of the day. Everywhere a weak and unhealthy individuality is manifest, bearing the same relation to historically-developed creations as the fanciful experiments of an untaught boy to the labours of the scientific chemist.

Pedantic rules, such as those which fettered Poetry and Painting in the last century, should indeed be laughed to scorn by the earnest student; but these fundamental bases and limitations which have grown more or less into the hearts of all civilised beings should

be unhesitatingly accepted, not in the sense of restrictions, but as conquests won by the intelligence of our forefathers.

The artist indeed, in reality, gains greater freedom by obedience than by rebellion, a fact which bears a curious analogy with certain well-known and much canvassed phenomena in political life.

Mr. Reade's patronage of the left arm is only part of a doctrine, the full triumph of which would result in the disorganisation and confusion of the principles and ideals on which the state is built up. To him we must emphatically repeat the dictum which he addressed to his opponents, *Who cannot survey, cannot comprehend*. Before assailing that which has become the instinct of the mother and what she naturally desires should become the instinct of the child, it ought to have occurred to him to inquire whence the origin of the mother's feeling; he should not have allowed himself to be led astray by a few jarring facts and fancies, but have taken into view the whole wide sphere of historical growth.

Such a study would assuredly result in Mr. Reade's confirmation of what we unhesitatingly affirm; that the duty of the workman, whether he be of those who wield the hammer, the brush, or the pen, is to keep steadily before him as his ideal, not the body that produces, but the product itself: inasmuch as the workman is not an individual in the sense of the savage or beast of prey, but part of a whole in which even the highest intelligences are subordinate. His part is to do the best he can, and that comes only by devotion of especial attention to the education of one faculty of the mind or of one member of the body.

England does not want a generation of athletes; we have, perhaps, more than we need at present; but there is a pressing demand for reverent, creative, artistic power both in the highest and the humblest branches, and, with this fact before him, we may fairly ask Mr. Reade to desist for the future from teaching that which his inability to survey in the widest critical sense renders him incapable of fully comprehending. We have said that he is a creative artist, and one whom we honour; and we can in conclusion pay him no better compliment than by desiring his return from the region of theory to that in which he is really eminent, the region of practice.



ART WORK.

THE revival of the ancient polished brass work for furnishing purposes is now much in vogue, and takes the place of the rich ormolu; cast work is brought out better in this finish as regards design, as no skill to cover defects adopted in burnishing as is necessary in dipping ormolu work is needed. By a new process, the richness of the metal is brought to the surface, and contrasts very much against dipped work. We refer more especially to fenders of pierced, polished

brass, with cast pilasters, some exquisite designs of which were first introduced by Messrs. Riley, Robson and Co., Sheffield, into the market, since then they have been extensively manufactured to suit Early English furniture. The surface being lacquered, they retain their clean appearance. The balustrade pattern has been well chosen, the pattern is very antique, and looks well, showing a tasteful tile hearth between each balustrade. Grates are matched with polished plain mouldings, but the chief work and design may be said to lie in the fender and fire-iron rests *en suite*. This class of decoration is eagerly looked for by architects and house-furnishers, and we hope to give several illustrations of the best forms.



SPECIMENS OF CUT GLASS WARE. FROM THE PARIS EXHIBITION.

HAVILAND'S CERAMICS.

BY the favour of Mr. Haviland, the inventor and manufacturer of the porcelain which bears his name, we have recently had the opportunity of inspecting some of the finest products of his kilns. At the factory at Limoges only one quality of porcelain is produced: the body is a pure St. Yveix kaolin of the finest quality, the glaze is pure felspathic rock. Both

body and glaze being fired at one time, are *melted* together at a temperature of 3200° Fahrenheit, a temperature, be it noticed, at which all metals but platinum are volatilised. This pottery is therefore beyond all exception the hardest and most dense material of human art industry known.

The proprietor of the works is assisted by a large staff of distinguished artists, including in the list the names of Bracquemond, Petit, Lebeau, E. Renard, F. Lafond, E. L. Coutourier, H. Lambeck, Midoux, P. Aubé, Jean, Habert, Gournaud, Girard, Chaplet, E. Dammouse, E. Lindenchér, L. Parisot, Z. Morand, and M. Bocquet.

One or other of these names is attached to each of the several designs modelled by their hands, and not cast, or reduplicated; after the ordinary manner of pottery manufacturers.

Mr. Haviland, who has paid much more attention to every detail connected with the artistic production of the potter's art, especially of the manufacture of porcelain, has found time to systematise the whole subject of the history of the ceramic art, and has set forth the results in a careful classification, which may be readily understood.

By reference to this painstaking method of analysis, he has made plain a subject which hitherto was as complicated as it was obscure.

Had he contented himself merely with a summary containing the names and dates of all the known manufactories in Europe, following the usual plan pursued by most writers on ceramics, the conclusion arrived at would be that no two producers of glazed pottery used either the same process or the same materials. In the table he has formulated, the main divisions of the art may be seen at a glance. From it one may readily see that the main difference between porcelain and earthenware consists in the one being translucent, the other opaque. Hard porcelain is made from kaolin, a variety of decomposed granite, a material which nowadays enters largely into the manufacture of paper, calico, and other wares. Kaolin was formerly brought almost exclusively from China, but is now obtained from a wide range of localities nearer home. The Chinese clay used in the King-teh-chin works is found under a mountain side, which is named Ka-o-lin in the Chinese maps. The body or paste of earthenware is of various qualities, depending for their value upon their degrees of vitrification; and *faïence* or *grès* earthenware of various sorts are severally known by the extent of the firing the clay has been subjected to in the process of manufacture.

It is by practice alone that one can hope to recognise the various glazes of pottery; the stanniferous enamel is perfectly opaque, all other glazes are transparent or translucent.

The felspathic glaze is the hardest, and its appearance is a safe guide in its selection; the boracic glaze for white articles is most difficult to discriminate, but where colours are introduced, the boracic glaze gives a peculiar beauty to the several colours, thus cobalt blue, turquoise blue, and pink are especially fine, whilst with any other glaze the blue and pink tend more or less towards a violet tint. We have therefore a natural transparent porcelain from China, Japan, Dresden, Berlin, Sèvres, and Limoges, of pure enamel of felspar in this section with the biscuit porcelain of Limoges and China. In this same transparent group there is the artificial alkaline enamel, either coloured or uncoloured, from Persia, China, St. Cloud, Tournay, Sèvres, with the now firmly established products of Haviland and Deck. The calcareous clay of this group with boracic enamel includes English china, Minton ware, Worcester and Copeland

china, as well as the felspathic clay of which Parian is produced, by the English firms of Copeland, Worcester and Minton. Of the opaque earthen body there are the transparent enamels with a non-vitrified break, and the opaque with a vitrified fracture, the former presenting a plumbiferous enamelled surface, of which the celebrated colourless *faïence* of Henri II., known as "terre d'Orion," Wedgwood, Meakin, Creil, and Montereau is composed; the alkaline enamel, in which group we place Haviland's coloured Limoges *Faïence*, and the latter, known as *Terres*, being opaque, has a stanniferous enamel, which contains in its list the colourless Della Robbia, Rovigo, Fontana, Rouen, Delft, Ulysses de Blois and St. Clement ware.

The coloured enamels of Colinot, Parville, and Longy belong to this category, whilst the biscuit enamel of the last division we have mentioned contains the ware known as Boccaro, Bizen, Grès de Flandre, Grès from Germany, Beauvais, and last but not least, the Doulton and Martin ware, which has rendered these English products, and especially the latter, so popular amongst collectors of recent years.

The Chinese were the first to make natural porcelain; they discovered the plan of firing the body and glaze in the kiln at the same time, and by the application of coloured oxides over and under the glaze succeeded in producing the surface known as *pâte-sur-pâte*.

At Limoges they found a peculiarly fine deposit of kaolin in the year 1765, and the manufactured ware sent to Sèvres was there fired in the kilns where up to that time *pâte tendre* was made; after the year 1804 *pâte dure* alone was manufactured at Sèvres. It was in the year 1775 that the brothers Grellet started their factory at Sèvres, and in 1840 David Haviland, after a very small beginning, in a few years raised the industry of Limoges pottery to one of great magnitude, and the establishment founded in that year is to-day unquestionably the largest porcelain manufactory in France.

Porcelain *pâte dure* is capable of being very highly decorated, provided that only decorations appropriate to the nature of its hard enamel are resorted to. Unfortunately, the ware is oftentimes overloaded with ornamentation in colours and gold far inferior in beauty to the pure and undecorated enamel. The ware demands a style of decoration deriving its beauty chiefly from the grace and chasteness of the design, and not, like *faïence*, from any brilliancy in the colouring. It is, no doubt, possible to decorate porcelain with brilliant colours, but in that case it is necessary to apply the colours under the glaze. The oxide of cobalt, at the high temperature of the kiln, will melt and produce the highly fluent colour known as "bleu de four." Its depth and richness are wonderful, and it is a pity that it can only be employed in solid colours.

There have been of late many experiments made with a view to decorating porcelain with oxides under the glaze, as is done with ordinary colours over the glaze.

The results have been superb. Unfortunately, the high cost of producing such goods has prevented the general adoption of this style of decoration. The true way, however, of decorating hard porcelain is to apply the colours under the glaze on the unbaked clay.

The decoration "*pâte-sur-pâte*" is also successfully resorted to in ornamenting porcelain. The latter style was invented by Solon at the manufactory of Sèvres. It consists of an application of soft clay or barbotine to the surface of the vase, which has previously been tinted so as to form a background to the super-imposed decoration. The applied clay is then sculptured as one would model in wax or modeller's clay. When fired, the clay

two years later Mr. Haviland perfected the process of painting in enamel oil on faience. The first works were from the pencil of Bracquemond the elder, Chaplet the inventor, Dammouse, Lafond, Jean, and Couturier; these were sent to Philadelphia in 1876. The earthen opaque body of the object, which in form at least in no instance is a slavish copy of any well known or classic design of the schools, is founded upon lines so new and unaccustomed that they almost suggest the term "*caprice*," as peculiarly applicable to their quaintness and freedom from conventionality. However, for the present we will be contented to direct attention to a few of these forms figured in our pages which have been, it may be seen at a glance,



CASKET OF EMBOSSED LEATHER WORK. FROM THE PARIS EXHIBITION.

becomes translucent, and the whole figure is lighted up. In 1870, Mr. Solon made an engagement with the Messrs. Minton of England, and it is to England, therefore, that we must now look for the finest specimens of *pâte-sur-pâte*.

But in the mean time Mr. Haviland had made wide discoveries in dealing with enamel alkaline; the *pâte tendre* being harder than any other known kind, lends a greater depth and richness to all the old specimens of Persian, Chinese, and Japanese ware, and to its reproduction in France both Deck and Haviland paid unwearied attention for many years. It was not however until 1873 that M. Chaplet, at Bourg-la-Reine, succeeded in overcoming the difficulties which stood in the way, and only

designed by true artists, devoting the space at our disposal to the consideration of the colours and their mode of application to the surface of every other kind of decorated pottery. In ordinary china painting the colours must be applied very sparingly, and great care must be displayed in the employment of oxides, since they have the tendency when used in near propinquity to merge and blend unharmoniously, as every painter on china knows to his cost. This necessity limits the china painter's range to the narrowest course; and although tact and long experience enable him to conceal his scanty resources, it was all the greater discovery to make, whereby the palette of the decorator of pottery may be as rich in combinations as the palette of the painter.



NOTES ON THE PARIS EXHIBITION OF 1878.

A TIMELY circular addressed by Mr. P. Cunliffe Owen to intending exhibitors, reminded them of the fact that H.R.H. the Prince of Wales, as President of the Royal Commission, would be pleased to inspect the completed British section one clear week before the actual opening of the Exhibition on the first of this month, and the circular also pointed out that the best means of ensuring a certain delivery of their goods in time for the occasion ought to be secured to exhibitors by means of the *grande vitesse* and not by the ordinary railway service. This call has been responded to with alacrity, so that ample time was actually afforded for giving the necessary "finishing touches" to the superb effect produced by the groups of English, Colonial and Indian productions generally on the opening day. As might have been expected, the English manufactures at the Paris Exhibition impress all beholders with the magnificent solidity of their workmanship, nor are the products of English artisans and mechanics, shown at Paris this year, at all wanting in either artistic grace or workmanlike finish. Unquestionably the grandest hall in the building has been devoted to British industries. It is in itself a magnificent chamber, exceeding in beauty anything of the kind ever before attempted at any place. Wealth and industry are here united in a way never before realised; the glitter of the colossal Indian structure, all resplendent as it is with burnished silver, is not by any means an exaggerated object in the general display, balanced as it is by the neighbouring Canadian trophy. The floor of the vast hall is covered throughout with matting, the walls are painted a chocolate colour, the approaches are covered by superb portiers or tapestry-curtains which produce a fine effect in the

general scene. We have already had occasion to mention the decorations of the side walls and ceiling in boldly raised work of effective pattern laden with gold and crimson; for this the munificence of the city of Paris is responsible; for the actual details of decoration and so forth in the British section, Mr. G. Aitchinson is to be accredited for good work well executed. It is difficult to know what to examine at first, where all is so novel and perplexing. A fixed impression that bears upon the mind in traversing Paris on one's way to the Exhibition, is produced by the contemplation of so many evidences of the cruel mauling Paris so recently received from the hands of the intolerable enemies of France; whilst the good citizens of Paris are making unceasing efforts to eradicate every trace of her humiliation by the substitution everywhere of much more stately edifices upon the very ground recently occupied by the ruins of the old historic monuments which were for centuries the glory of their city.

On entering the superb buildings of the Exhibition by any one of the sixteen main approaches, one feels the unmistakable grandeur of French ideas, purified as they have been by recent adversity. That England and France between them share the glories of the 19th century, is clearly shown from the productions of these two great nations, the whole world deriving from the intelligence and industries of France and England whatever is worth having in commerce and civilisation. Other countries send their best products, undoubtedly unrivalled in themselves even by either France or England. In some particular industries their sections will occupy perhaps much more of the time of the appreciative visitor, and much important technical knowledge of modes of dealing with various

substances essential to man's comfort or convenience will be either admittedly gained or tacitly acknowledged, after a careful study of the special processes of manufacture with which we are either altogether unfamiliar, or perhaps incapable of attaining to. Everywhere we notice a greater degree of refinement on the part of foreign artisans, no matter whether that refinement is the natural outcome of the same hereditary industry practised for centuries by

England some half century ago, and which lacquer, as far as the Japanese are concerned, is not produced by a black pigment, but is merely a highly glazed dark colour, for the most part of a deep brown or sepia colour on a pure white ground, and not for one moment depending upon the lampblack abomination of our own workshops for its intensity of colour.

Our own modern tapestry is an illustration of what



SPECIMEN OF HAVILAND'S FUSED POTTERY AT THE PARIS EXHIBITION.

families, as in China or Persia or Japan, or are things of yesterday, as the products of Switzerland or our own distant colonies. For instance, the Persian carpets and Japanese lacquer work have apparently in no wise deteriorated during the last five centuries, the fine effect of the seemingly black lacquer which has evidently quite recently revived amongst us the craze for black and gold furniture, that obtained for a short time in

can be done in revived arts in English workshops when the control is placed in competent hands. The reception room of the Prince of Wales in the pavilion, of which Mr. Gilbert Redgrave is the architect, is hung with a series of fine tapestries, representing scenes from the life of Falstaff, which are admirable as pictures, and as tapestries may fairly vie with the best French or Flemish work. The rich and Rubens-like picture of

Her Majesty is a superb specimen of tapestry portraiture, and being hung in a suitable light, makes a capital centre, from which the whole effect of the chamber derives the greater part of its lustre. Again, the wrought-ironwork for the front railings of the house, and the superb fire-place of the principal chamber, of which we give an illustration, are as fine as 15th century work, and are from designs by Mr. Alfred Barnard, of the firm of Barnard, Bishop, and Barnard, of Norwich. These are in perfect keeping with the rest of Gillow's designs, which, by a happy forethought, have been universally adopted in the whole building, and secure that uniformity of effect which, after all, is the best evidence of what is called good taste. It would be difficult to follow on a first visit any settled plan of observation; even for the specialist a visit to the Exhibition is as distracting as a collection of books in a public library, where the student goes with the settled determination of examining some particular subject. Every page of some obscure author draws off his attention from the work in hand, and night closes in before he has fairly settled down to his work. If one would care to learn how the great body of water rising in front of the Trocadéro is made to flow incessantly, in fountains, rills and cascades, over so wide a surface by some hidden contrivance, which must, from its position, be a masterpiece of mechanical skill, and if only he avoids the allurements offered by the grand buildings to the right and left, as he approaches the stately structure erected by M. Salard for the reception of the motive power which ejects so vast a body of water, he will be well repaid for the constancy he displays in refusing to be attracted even by Persian kiosk, Algerian palace, or Chinese colony. In the building he will find a monster wheel, driven by two horizontal engines, making sixteen revolutions in a minute, yet so perfect is the arrangement, that these engines can be worked independently. And with them are associated a feeding-pump, a condenser, and an air-pump, on a scale rarely, if ever, before attempted. The whole of this unequalled hydraulic machinery was manufactured at Creil, under the direction of M. Le Brun, and most assuredly demands the attention of every one interested in works of great engineering enterprise intended to master some more than ordinary natural obstacle.

Algiers is being fairly represented by the buildings, gardens, produce and manufactures of this the most important French colony in Africa. Vast sums of money have been expended upon this portion of Barbary, which, after all, can hardly be called a colony, since, in spite of all the efforts of the government of France to make it a success, the emigrants sent out at frequent intervals during the last thirty years have failed utterly in establishing themselves on the soil; the superb looking lands with costly farmsteadings and appropriate enclosures stand idle year after year, through the inability of European constitutions to cope with the unsuitable

climate or soil of the districts most tempting to agriculturists.

The same objections do not exist on the north-western frontage of the continent, we mean that portion of the empire of Morocco facing the Atlantic. Here, whilst nature offers none of the drawbacks to which Algiers is at all seasons liable, the laws of the country are found to be equally intolerable, and the cultivation of grain or the exportation of the most paying products of the country are forbidden by law to be practised. Still Morocco offers the best field for enterprise. Algiers is independent altogether of English capital or English activity. Marseilles is too close to it to allow of any of its resources being overlooked by capable merchants and capitalists. English invalids find the short residence at Algiers amongst a group of winter visitants often of great value; these visitors, with a few residents and a small section of producers of early fruits and vegetables for the Paris market, with a section of the French army quartered there, make up the sum total of Algiers' society; the borders of the desert at the back, and a few oases, like L'Agouat, are occupied by a mixed community of Arabs and Frenchmen, but there is no increment in the numbers of either, except that derived from fresh accessions from France occasionally.

The English in the coast towns of Morocco have increased greatly in numbers of late years, and the enterprises in which merchants are engaged in that healthier climate promise that Morocco will take a far higher position in the future than Algiers can ever hope to attain to.

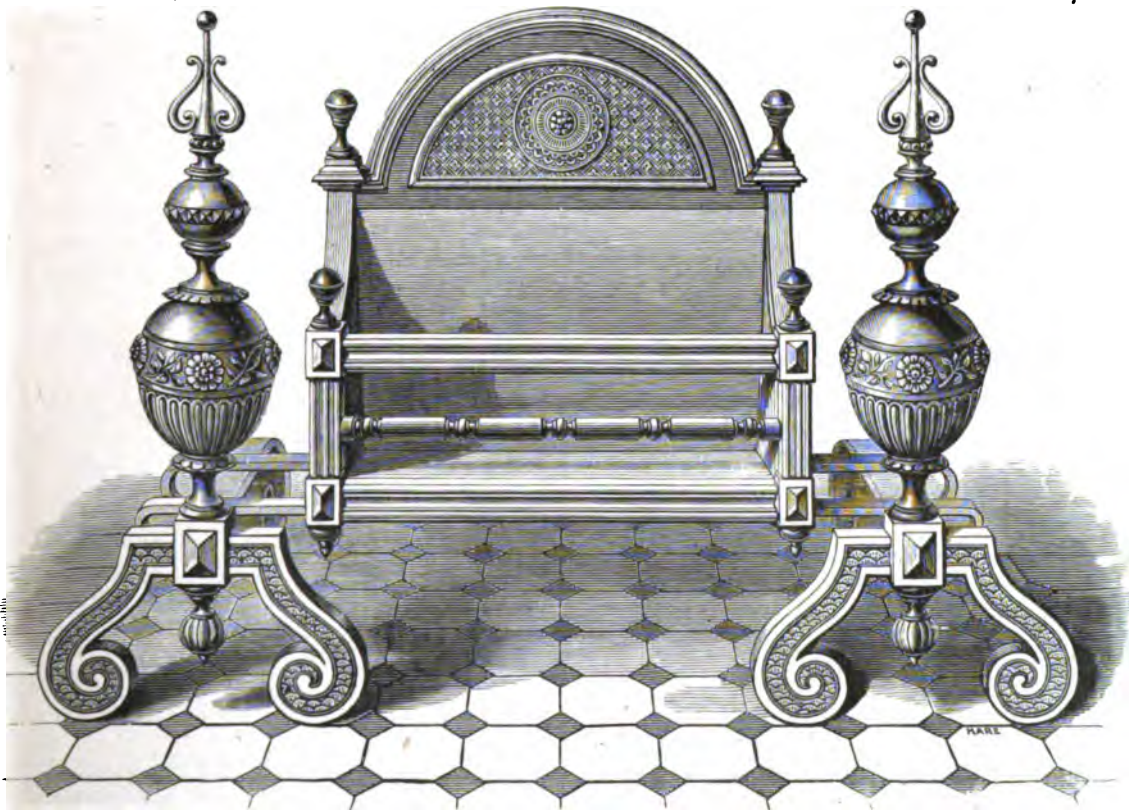
There is no need, therefore, for the expenditure of English capital in Algiers, for the French are keenly alive to their interests both at home and in their colonies; and whether it be money, minerals, marbles, or other objects of natural wealth, the government department draw frequent attention to possible sources of revenue, so that there is no field for enterprise which has escaped the able administration to whom the French have confided Algerian affairs.

A plot of ground in front of the Trocadéro, on the left-hand side as that fine structure is approached from the bridge over the Seine, has been occupied by the Shah of Persia for the construction of a highly decorated building in the Persian style. It consists of a lofty two story building with cool balconies and airy approaches; the external decoration is by no means suggestive of its costly interior. One grand feature in this Persian pleasure-house consists of a crystal ceiling of cubes and other many-sided figures of looking-glass projecting downwards from the roof; the geometric designs are of the purest form of oriental art. The cost is prodigious, the result disappointing; the skill of the artificer is nevertheless beyond all praise; the appliances for gaining the exactitude of the arrangement of an inverted surface were of the very simplest kind, but served their purpose admirably in the hands of workmen so expert as these Persian mechanics have unquestionably proved themselves to be.

We noticed that the whole of the design for the ceiling made up of these fragments of looking-glass was first of all projected with extreme mathematical precision upon the floor from points bearing exact geometrical relations to the whole. The position of the facets, so to speak, of the various polygonal figures, or rather the base lines of each figure, were nicely drawn in outline measured off from the centre of each, transverse lines cutting the pattern in the various directions needed to secure accurate approximation. Corresponding positions on the flat ceiling were easily found by means of an ordinary plumb-line, and with the aid of a slender but well devised scaffolding the workmen, acting under the direction of the foreman

travellers who have had the opportunity of seeing them in the pursuit of their accustomed avocations.

Not far from the Persian structure, to which we shall have occasion to return later on, the French "Woods and Forests" Department has taken advantage of a fine position, on which they have erected a magnificent building, constructed throughout of the various native woods of France suitable for building purposes, not only for internal use, but for external purposes, where wood capable of withstanding the action of the weather is essential for health and comfort in house building operations; the walls are finely decorated, and the roof, composed of a vast number of "shingles" of several



FIRE-PLACE, ELIZABETHAN. IN THE PRINCE'S PAVILION, PARIS EXHIBITION.

constructor, built up, or rather down, this quaint and not unpleasing decoration, constructed throughout of such very unusual and to our notion most unsympathetic material. Looking-glass, without the aid of irregularity of surface, has little or no refractive power when applied as the Persians have arranged their many-sided figures, and one cannot but lament the outlay of so much admirable ingenuity, the display of so much really sound art knowledge, and at the same time of so much want of propriety in the selection of the material used. The Persians are neat and refined workmen, simple in their habits, and more assiduous in their occupations than we felt inclined to admit, from the study of superficial

varieties of suitable woods, is contrived with much care, with a view to display, by texture, colour, and pattern, the best effect, especially in the close proximity to foliage. The wood-work of this really important structure is finished with much care and judgment. From its great size the building has the merit of presenting the appearance of great strength and solidity, while the visitor on a nearer approach is feasted with a multitude of pleasing and attractive details, which by no means injure the general effect.

Further off, but still on the same side with the Timber Pavilion, stands a great building, which at once recalls the Moorish dwellings of the north-west African coast.

ART, LEARNING AND LITERATURE IN VICTORIA, AUSTRALIA.

(Continued from page 109.)

WELL may the last number of the 'University Magazine' thus express itself:—

"With regard to elementary education, Victoria is in advance of the mother country; only about $2\frac{1}{2}$ per cent. of the children of a proper age are not being educated, either in public or in private schools, or by masters and governesses at home. In the year 1876 only 6.41 per cent. of the persons who married were unable to sign their names in the marriage registrar. In England and Wales, the average was 21 per cent. For higher education, Victoria has her university, free libraries, mechanics' institutes, museums, etc. She can show, too, a long list of charitable institutions, asylums, hospitals, homes, refuges, and reformatories."

Concurrently with the University (the foundation stone of each being laid on the same day, August, 1854) the Public Library was established, to which we shall now turn our attention. By means of this institution a vast amount of information and knowledge has been disseminated, and the general appreciation of its advantages has been very gratifying. This appreciation is proved by the fact, that out of a population of 270,000 in Melbourne and its suburbs, the readers who resorted to it last year were 122,480, a result truly satisfactory and encouraging to the hopes of its supporters. In the United States of America, it is a fact that the thirty-five chief libraries in the Union only had 101,267 readers, which we commend to the notice of those who imagine that there is a similarity between the two peoples. In the British Museum Library the number of readers average 106,000 in the year. The contents of the library, which numbers 92,000 volumes, are well described in the Report of the Trustees. "The character of the literature may best be described by negatives; works usually classed as works of fiction and of the imagination, and those which in some catalogues are entered under the head of 'literature for juveniles,' are not represented in this library to any extent, in fact do not exceed 300 volumes. Books of injurious tendency are not displayed here. Those of a purely ephemeral description and of transient value, mere literary curiosities or rarities, expensive manuscripts, those recommended by their sumptuous binding or illustration, have hitherto been set aside for those which commend themselves for their substantial merit and sterling value."

But it is not Melbourne alone which derives benefit from this institution. The trustees in the most liberal spirit have organised a lending library, by means of which 23,000 volumes have been circulated through sixteen towns, containing 82,000 inhabitants. It is proposed

to extend this system to all places which have local libraries or literary institutes, which afford the means for doing so. At present 8,000 volumes are annually lent.*

The large number of readers who have used the Public Library is doubtless to be attributed in part to the free access which is allowed to everybody of any nation, class, or sex, who is over fourteen years of age. Chinese have been seen there. There is literally no restriction; no orders, no tickets are required, even the form of the reader writing down his name is dispensed with. He searches for and takes down the books himself. This apparently dangerous, but really wise confidence has not been misplaced. The trustees inform us that, "the prognosticated extensive abstraction and destruction of books was not fulfilled, and to the credit of those who have visited and frequented the library, it may be recorded that during the thirteen years the public have enjoyed unrestricted use of the books, the number taken away has not exceeded 237 volumes. Of these fifty were octavos, of which six were returned or found at the enumeration which succeeded their being missed; twenty-eight volumes deposited with the trustees, not marked with the library stamp, stolen by one man, were recovered through the active co-operation of Mr. Batten, the librarian of the Mechanics' Institute of Ballarat West, at which town the thief had attempted to dispose of them; the remainder were restored, on the prosecution and conviction of the offenders. Of the other 183 volumes, consisting of 12mo., 18mo., and one 24mo., six were found or returned. Of these latter, of small size abstracted, the greatest number were educational works of the trifling value of 4d. to 9d. each, probably borrowed by youths for the purpose of perusal at home, who may have entertained the intention of returning them, and may have been prevented by not having found an opportunity of doing so without being detected. Some were works of fiction, which the trustees have declined to replace. . . . A retrospect of the occurrence of fourteen years shows a relatively trifling number of instances of the abuse of the privileges extended to the public,† that the proportion of such instances has decreased in ratio as the number of volumes and of visitors increased, and that the liberality of administration (whereby the public were influenced to regard the property as their own, committed to the vigilant but confiding custody of the trustees) has tended much to the convenience of readers, to the protection of the property itself, and has produced that becoming state of deferential order which uniformly obtains in the library."

Before we leave the subject of the number of readers, we should mention that this library is only one of several which exist in Melbourne. There is the Parliamentary Library, consisting of 40,000 volumes. The University

* The books are stamped on the side with the device of the library and motto, "Delectant domi, non impediunt foris, peregrinantur;" on those of the lending library the word "Rusticantur" is added.

† Thirteen persons during thirteen years were convicted of theft.

possesses, as we have already said, 10,000. The Supreme Court of Justice has 13,000, for the use of the legal profession in the metropolis, whilst at the various circuit towns, 4000 more are at hand for more convenient use. Trinity College is the owner of 1200, which is but a commencement; the Mechanics' Institute, Melbourne, and several in the country, the West Melbourne Literary Institute, the Royal Society, the Medical Society, and several other bodies each have collections of their own. These figures "speak volumes" for the intelligence of the colonists.

Free Libraries, Athenæums, or Mechanics' or Literary Institutes exist in most of the towns of the colony. These institutions numbered 130 in 1874, and over a million of visits were paid in that year to sixty-eight of that number which kept visitors' books. The number of volumes they possessed in that year was 174,103, of which over 13,000 were presented by private persons. The cost of the building was 90,280*l*. The amount of aid received from Government from the commencement was 50,238*l*, and the amount from private sources was 158,510*l*.

Let us now describe the building itself. Two acres on a commanding site at the summit of a hill were granted for this purpose. It stands back 120 feet from Swanston Street, 99 feet wide, the uniform breadth of all the main streets in Melbourne. It is of the Romano-Corinthian style, and the top of the parapet is 55 feet from the ground. On the ground floor the entrance is into a hall of 55 feet square; on the south is a chamber used as temporary offices, and a room 55 feet by 50, in which there is a collection of coins, seals, medals, and illustrations of various branches of the fine arts. On the north there is a chamber 95 by 50 feet, in which casts of modern statues and busts are to be found. On the first floor is the reading room, 240 feet long by 50 wide, and 30 high, a room which, from its elegance of proportion and taste in arrangement, always strikes a stranger as one of the handsomest he has met with in his travels.

In 1866 an intercolonial exhibition was held in Melbourne, and to accommodate it, additions were made, thus completing the first square according to the original design. This gave a great hall running parallel to the library 220 feet long by 82 wide and 48 high. This hall is now used as a technological and industrial museum. We can give no better description of this than by quoting from the address of Sir Redmond Barry, who from the first has been president of the Library, to the workmen employed in building the hall. After enumerating the dimensions of the most celebrated halls in Europe, he continued: "We may contemplate with feelings of justifiable exultation the hall in which we are now met. It is 220 feet long and 82 wide, so that with the exception of those at Ypres, Padua, and our own Westminster, there is none in Europe which exceeds it in length, while it is larger than four of England's cathedrals. Still as you recollect though Westminster

Hall being 238 feet in length is 18 feet longer than this, it is only 68 feet wide, so that ours of 82 feet wide is 14 feet wider, and as the walls of our hall will be 55 feet high when carried up as proposed, and as our roof is waggon-shaped, with a capacity and lighting power not possessed by the hammer-beamed roof of Westminster, the respective cubic contents of area may thus be compared—Melbourne, 950,000; Westminster, 900,000, showing that the Hall of the Melbourne Public Library and Museum, built in the twenty-ninth year of the existence of the City of Melbourne, may exceed in size that of the ancient City of Westminster by 50,000 feet. In addition to this, you see two wings connecting this hall with the front of the library; each of these measures 230 feet, and when raised to the contemplated height of three stories, is capable of holding an accumulation of treasures of which Victoria may and doubtless will make a profitable and wise use.

"The rotunda of the grand staircase, which will be, when finished, probably as handsome as any yet built, not excepting the Scala Regia of the Vatican, measures in diameter 71 feet. It exceeds therefore by six feet the great dome of the Pantheon in Paris, one of the most striking objects in that delightful capital, and is as large as the dome of the Cathedral of St. Isaac's in St. Petersburg, that city of giants, where everything is on a scale of surpassing splendour, a church whose monolithic columns of rose-coloured granite are 56 feet high, nine feet higher than those of the original Pantheon, to which reference has so often been made as one of the noblest monuments of ancient Rome.

"This, then, surely is a hall well worthy of the objects for which it was designed; well suited to the graceful sociabilities which will usher in the approaching great act of intercolonial hospitality for which it is intended, and for the reception, at the close of the Exhibition, of the works of natural science and art to which it is to be devoted."

This description of the building has anticipated the next portion of our subject. As will have been seen, the duties of the trustees are not confined to the maintenance of the Library; they have intrusted to them also the Museum and the Galleries of Fine Art, the Schools of Design, and of the National Picture Gallery, all of which are alluded to in their interesting report. It is obviously impossible that even Australian wealth and ambition can obtain many works of the ancient masters. Several good replicas however have been procured, and modern artists have met with a share of patronage. In the selection of both of these, the trustees have had the inestimable advantage of the taste and judgment of the late Sir Charles Eastlake, who kindly devoted much attention to their wishes. Since his lamented death, they were fortunate in securing the aid of Messrs. Ruskin and Herbert, R.A., who have undertaken the duty with a readiness for which they deserve the thanks of all lovers of art.

There are about eighty pictures of merit already in

this gallery, in addition to numerous photograph portraits, busts, etc. The last which has gone out is a copy in oil, by Herbert, of the descent of Moses from the Mount Sinai, the original of which is in the Houses of Parliament. We have high authority from one who has visited all the collections in Europe, for saying that he has seen none in which the proportions, lighting, and general arrangement surpass those of the gallery at Melbourne.

The Museums and Art Galleries next demand our attention. As a site for these, two acres were allotted immediately adjoining that on which the Library stands. For the commencement of these, and of a collection worthy of them, the legislature has already granted 47,126*l.*; private donors have added 2300*l.* We cannot attempt to give a description of their varied contents. It must suffice to say that a list occupies one hundred and thirty pages of a closely printed catalogue, a very satisfactory beginning of a collection which will annually increase.

We have thus seen that the duties of the trustees are of a most extended and varied character. They comprise the conduct of the Library, Museum, and National Gallery of Victoria. Powers have also been wisely added for furthering the objects for which they were appointed for holding Fine Art Exhibitions of articles lent by the owners, of which they have availed themselves.* They have availed themselves of these powers for the formation of Schools of Art. They are also empowered to make loans of works of art to organised and responsible bodies in other towns—a good example to this and other countries.

We must not conclude this article without mentioning a similar wise liberality evinced by the legislature in the encouragement of other branches of knowledge. Not only are the statistical reports drawn up under able management, but all the modern forms and improvements have been adopted, thereby avoiding the errors and blunders which in former times too often characterised such returns. Higher science has not been neglected; an astronomical observatory has been established. It contains a magnificent telescope by Grubb, of Dublin, the maker of Lord Rosse's celebrated instrument, which this is said to surpass. It has proved itself well adapted for the observation of nebulae and faint clusters of stars, but Magellan's Clouds still remain unresolved, nor has any great discovery yet been made by it in the southern skies. Some lunar photographs have been made, which are said to excel any obtained elsewhere.

Astronomers will read with interest a description of this instrument. "The telescope is on the Cassegrain construction; the large mirror has a diameter of 4 feet, with a focal length of 30 feet 6 inches; the small mirror is convex, with a diameter of 8 inches and a focal length of 74.7 inches, the effect of the combined mirrors being such, that when the rays come to a focus near the lower end of the tube, they form an image as if they had

come from a single mirror of 166 feet focus. An average image of the moon would therefore at this place have a linear diameter of over 18 inches. The telescope is furnished with nine eye glasses, whose magnifying power varies from 220 up to 1000. All other instruments usually found in first-class observatories are in use here. 3576*l.* per annum is devoted to the maintenance of this establishment."

Handsome Botanic Gardens, situated about a mile from the city, prove at once an ornament to it and a source of scientific recreation to the inhabitants. They also afford a valuable means for the distribution of a larger number of specimens than is effected from our beautiful gardens at Kew—an inestimable advantage in a new country, where the flora is singularly restricted.

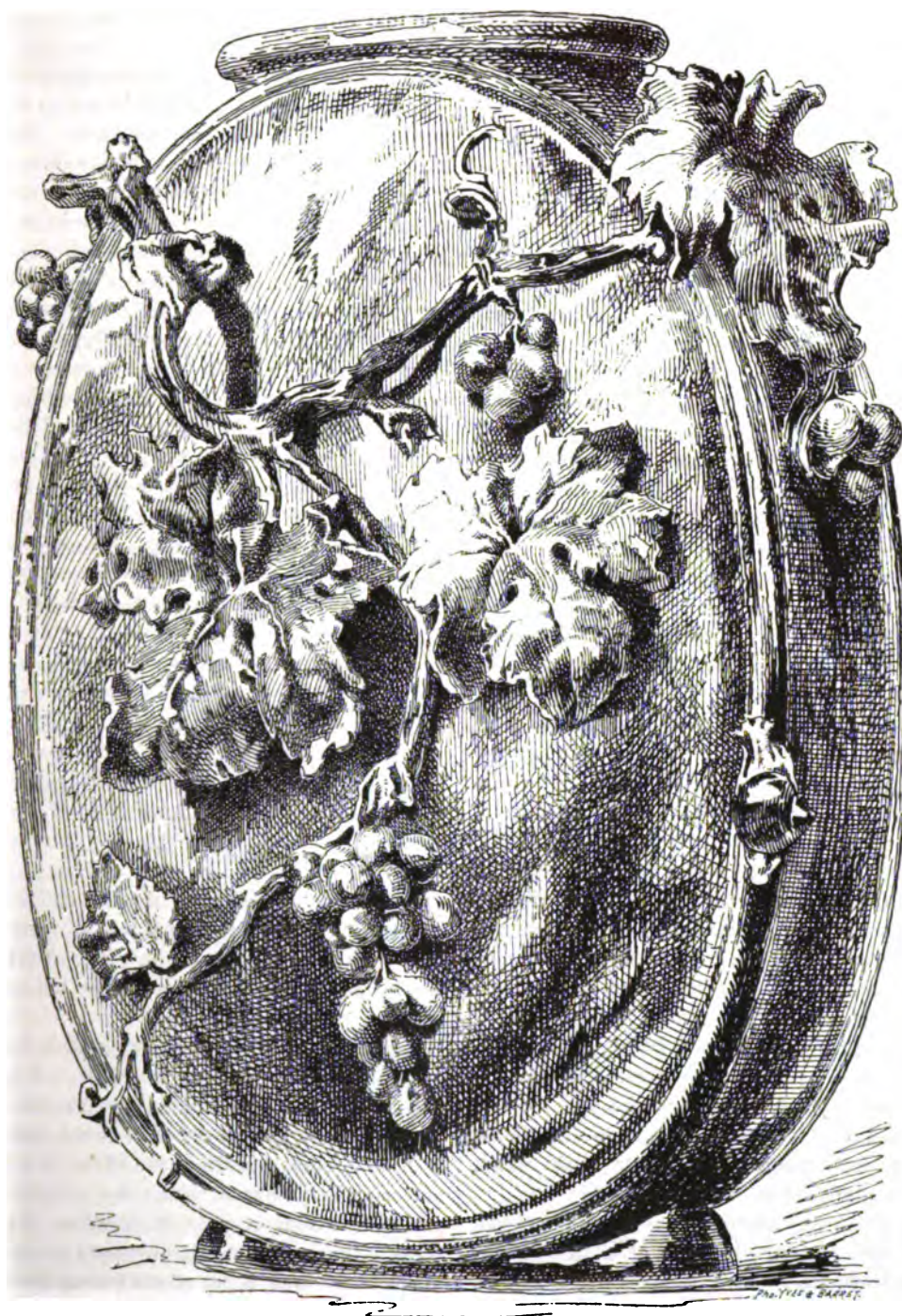
Although these latter instances of the interest felt in the cause of science and of general knowledge do not strictly come under the heading of our paper, still they are so germane to it, and furnish such powerful additional proof of the enlightenment and sense of the inhabitants of Victoria, that we feel bound to record them. In conclusion we would once more quote from the report of the trustees. "There is no desire to court any comparison unduly flattering to Victoria or disparaging to any other country. The sole object is to show that our fellow countrymen appear to be fully impressed with one of the most important responsibilities attendant on prosperity and the acquisition of riches, namely, the necessity for a liberal support of those institutions."

GERMANY TO-DAY.

AN eminent German writer, Herr von Kirchmann, is a somewhat merciless analyst of such vague and generalising terms as "Modern Culture" and "Latter Day Civilisation;" his criticisms upon the changes in habits and feelings lately suffered by all classes of German society are at once so correct and so vigorous that they will be read with as much interest in England as they have been in his own country.

After stating his conviction that the two chief objects of human effort always have been, and still are, the obtention of enjoyments and the avoidance of sensations painful or disagreeable, he observes that the labour actually applied to the achievement of those objects at the present time is far greater than that so applied at earlier periods of history. "All officials are obliged to work much harder now than formerly; Ministerial posts are laden with cares and annoyances. The country sends every year a number of its best and most experienced men to the assistance and control of the Government; these men, too, have to work harder than ever, and the year is not long enough to permit of their fulfilling even

* 14,634 visitors attended at one held in 1869.



VASE, DESIGNED AND COLOURED BY H. LAMBECK, FUSED AT HAVILAND'S PORCELAIN FACTORY, LIMOGES.

their most important duties. It is the same in smaller circles, and even in the immediate sphere surrounding each individual of every class; the wealthy manufacturer or banker is compelled nowadays to pass the greatest part of his time in his office. Nor has any age ever coerced the forces of Nature into its service so vigorously as this age of ours; the strength of millions of men is represented by mighty machines, devoted to doing the work of humanity, which silently and unpretendingly perform their appointed functions. But, in spite of all this, results do not seem to correspond to this development and expenditure of means to the ends above alluded to. Amongst the working classes envy and hatred of the property-owning class have taken the place of the frugality and contentedness that formerly characterised our operatives; the middle classes, by reason of increased competition and of the augmentation in luxurious requirements, cannot achieve enjoyment; and the extremely wealthy suffocate through very excess of enjoyment. Our moral conditions wear an even more ominous aspect. The ratio of increase in suicide is far greater than that of increase in our population. Whether or not this be also the case with respect to crime, I will not take upon myself to say; but the methods of committing crimes are much more horrible and shocking than of yore. Murders are unhesitatingly committed nowadays for the sake of a few thalers, and the murderer, as soon as he has washed off the blood of his victim, goes to the nearest pothouse and there drinks his glass of beer as calmly as the most honest man in the room. Disputes which used to lead to fisticuffs are now fought out with knives, and the knife-thrusts are aimed at the most vital organs. The number of crimes the preparatory process of which is cowardly lying-in-ambush is frightfully on the increase. The morals tolerated in social and business relations are becoming more and more lax. The realm of permitted deceptions assumes wider limits day by day. A man of business is allowed to make terms with his creditors twice and even thrice; if he be successful in again amassing a fortune, and can give luxurious dinners and balls, he is again admitted to be a respectable personage. The adulteration of comestibles and of all kinds of wares has assumed such dimensions that the State itself is compelled to take measures towards checking it. Nor is it now accounted to be sufficient that one should sin against morality and justice; a numerous class exists which refuses to admit the validity of established morality and justice, and clever, learned men lend their aid, theoretically at least, to dig the grave of all respect for our most important institutions."

Herr v. Kirchmann proceeds to analyse the leading measures of Imperial legislation passed since the unification of Germany, demonstrating that they have, on the whole, largely contributed to the further demoralisation of the classes dealt with by them, and that, being the avowed outcome of so-called "modern culture," they go far to prove that that culture, as far as its effects upon

the average of human happiness are concerned, is rather retrogressive than progressive. "I now," he further observes, "turn to our moral conditions. The purest morality, the completest legislation, must remain mere dead letters if moral feelings and respect for the moral law as such do not exist in the individual human being, and that with sufficient vigour to enable him to withstand the passions prompting him in a direction antagonistic to morality. These feelings and this respect are not, however, innate to mankind; they must be developed and strengthened with care and assiduity. From the oldest times till now, this task has been undertaken by three great institutions—the Family, the State, and the Church; but all three have been crippled in the fulfilment of their functions by our latest 'culture developments.'"

"The number of marriages in the middle classes is falling off conspicuously in consequence of the impossibility experienced by persons in respectable positions to keep up a household corresponding to their social station. The beautiful definition of marriage which describes that institution as 'the living-together of husband and wife' has ceased to be applicable to it. Officials, industrials, factory operatives, even handicraft journeymen, spend the greatest portion of their time out of their homes, by reason of the increased demands made upon their labour through the pressure of competition. The various descriptions of house-work, formerly performed by the wife, such as washing, spinning, weaving, sewing, knitting, soap-boiling, preserving, etc., are become branches of manufacturing industry with which domestic labour can no longer compete. Therefore, the married woman of the lower and middle classes also quits her home early in the morning; her little children are confided to the keeping of institutions founded for that purpose (*Bewahranstalten*) and schools, and those who are grown up must look out to earn their daily bread out of doors. By this means the domestic basis for children's education, and especially for the formation of their characters, is shaken to its very foundations. The husband spends his earnings in the pot-house, whither his wife not unfrequently accompanies him.

"Formerly the State was in a position to authoritatively support the general comprehension of justice, and to protect it against temptations; but modern developments have raised up against the State two enemies who deeply undermine respect for its laws and for its officials. These are two institutions of which the present age is proud, and with reason—namely, Parliaments and liberty of the press. Inasmuch as it is obviously necessary that laws affecting the well being of the people in general should be carefully considered, and as the interests of different classes for the most part clash, Parliamentary discussion naturally develops itself into a battle of interests, in which morality is chiefly used as a convenient mantle wherein to wrap them up. The more important and trenchant a new project of law is, the more fiercely is this battle fought out; all the weak points of the measure

are mercilessly exposed, whereby attacks upon the persons of the highest State officials are never wanting. The mere numerical majority of votes, by which a division is finally arrived at, is by no means calculated to awaken the moral feelings and assure that respect to the law enacted, without which it everywhere remains a dead letter, save where fear of punishment stands in the stead of moral feeling. Whatever measure of public respect for the sagacity of the legislative authorities may survive such Parliamentary debates is subsequently annihilated

justice, has been lowered by adversaries of whose supreme development the present age is enormously proud. Modern science, especially natural science and philosophy, has shaken belief in religious teachings even in the very lowest classes. Faith in God's government of the world and in a future state of existence, wherein virtue will find its reward and sin its punishment, is manifestly on the decrease, whereby one of the mightiest barriers against the force of the passions has been broken down. Moreover, the idea of State sovereignty has been so exag-



VASE OF FUSED FAIENCE BY THE HAVILAND PROCESS.

in the course of numerous discussions, on a greater or smaller scale, which are conducted for the most part in furtherance of special interests or by special associations, and which avail themselves of the weapons which have already been used in Parliament to oppose the law, in order to prove that it is a reprehensible product or intrigue and party feeling.

"The authority of the Church, also, which, in conjunction with that of the State, was formerly able so efficiently to foster and invigorate public respect for morality and

generatively adopted during the present century, that the State jealously watches every ecclesiastical development of influence; and yet the Church can only fulfil its great mission in this world in a feeble and insufficient manner if it be forlorn of a certain exterior and visible power."

Herr v. Kirchmann winds up with a severe criticism of the school-system at present obtaining in Germany, which he declares not to contribute to the raising of the standard of general morality, however effective it may be in imparting mere instruction to the rising generation.

MUSEUM OF PLASTER CASTS.

ON taking a retrospective survey of the stirring incidents which mark the present session of Parliament, whose tenor will demonstrate the universally expressed desire of our legislators to penetrate the fog which has been generated in Europe by war's alarms, the one little ray of peaceful light flickering in the general gloom that succeeded for a moment in raising the hopes of all interested in our Industrial Arts, was due to the discussion raised in the House of Lords on Earl Wharnccliffe asking Her Majesty's Government what was being done towards founding a Gallery of Casts from the antique in the metropolis? the accomplishment of which important object we had advocated month after month since the appearance of this periodical, when Earl Morley pointed out that on the continent there are numerous museums of this character, that it was not the object of those interested in the formation of the new gallery to supplant, but to supplement the existing schools of art. The Earl of Carnarvon followed, but whilst his lordship held that the collection of the British Museum was as far as it went unrivalled in Europe, he forgot for the moment that there are no plaster casts, and but very few original classic sculptures in the collection at Bloomsbury; whilst the Department of Science and Art Museum at Kensington has no classic work of any kind, its multifarious accumulation of objects belonging almost exclusively to the Renaissance period. Earl Cowper showed that with a fine collection of casts available for study in London, there is no occasion whatever for a young artist to go abroad for his art education. The Earl of Beaconsfield, with that wondrous elasticity of intellectual capacity he has always manifested since his first entry into public life, brought at once all his brilliant discernment into the subject under discussion. "The first blush of the proposition," said the premier, "is altogether in its favour, charming in its design, economical, and the taste of all classes provided for, but the truth is, that when you come to practice, particularly at this moment, there is immense difficulty;" and going on to point out the present chaotic condition of museums, his lordship spoke hopefully of the scheme, and promised to assist in securing its accomplishment later on, a statement which elicited expressions of satisfaction from Earl Granville. Attention has since been drawn to the fact that we had a fine collection of casts from the antique at the Crystal Palace available to the public, and it is true that so far as the general public are concerned, the collection at Sydenham is of some use; but for artists and students the casts needed for their purpose must be altogether different in character, they must be pure from the moulds, taken direct from the antique, without having undergone the least injury from either the finishing tools of the

clumsy fitter, or the serviceable three coats of paint administered every five years, which seem to be regarded as a *sine qua non* by the active curator, who is only satisfied with their decorative appearance when just emancipated from the clogging effects of white lead and drying oil. Besides, the fire at the Crystal Palace destroyed some of the finest examples, and the present collection is distributed amongst specimen shrubs, at the angles of passages and the doorways of fancy goods cabinets, and is in fact altogether out of the reach of the practical student in the arts, either of painting or sculpture. So convinced are the German professors of the necessity of preserving casts from antique objects intact, they have succeeded in inducing the government to offer a prize for the most successful method of indurating the plaster of paris by some means, in order that it may bear being frequently washed without risk of injury; and although the prize has been recently adjudicated for what is after all, in our opinion, a most defective method, we need not fear we shall fail in our efforts to accomplish this all-important object, for we have by us specimens of plaster of paris treated by Mr. Westmacott which are to all appearance, as they are on being submitted to the severest tests, as hard in texture as ivory or the finest marble, and as capable, or in fact much more capable of resisting damp or exposure than either of the materials we have named. It is some satisfaction to us to have been able from time to time to report on the newly opened continental galleries of casts from the antique, our object being at all times to show that since the Exhibition of 1851, when English Industrial Art was at a higher degree of excellence generally than it is to-day, the continental manufacturers, nobly aided by their respective governments, have spared neither money nor intellect in improving the artistic element in their growing manufacturing industries. English writers like B. R. Haydon, English thinkers like Ewart and Scott Russell, were hardly understood by those to whom they addressed themselves, but were eagerly read by German, Austrian, Swiss, and French public men, who during twenty years have lost not an hour in putting in practice the carefully elaborated views of our most practical intellects, hoping in time to be able to compete with us in the markets of the world, but hardly dreaming of the possibility of under-selling us to-day in our own. We hold that it is not too late to remedy the defects in our art education, which have grown up amongst us through the crass ignorance of those who were responsible for the right teaching of our Industrial Art classes. It is possible for instance to make a case of ordinary English mathematical instruments as good in material, as elegant in form, and as neat in finish, as those offered in London by Swiss or French commercial travellers for very much less money than Birmingham makers can produce such things; but it will be a work of great labour to induce workmen to display more dexterity in their manipulation of metal or textile manufactures, however much the employer may deplore a rapidly

diminishing market, in which foreign goods are offered of a much more attractive appearance than any he can produce, and at a price which practically excludes him. The same remarks apply to pottery and glass ware with equal force; glass tumblers of fine material, clear as crystal, dainty in form and of sufficient thickness, made in Germany and France, altogether outvie our English goods of the same character in appearance at least, whilst in price they will bear no comparison, being offered retail by our traders at one-third or one-fourth the price of English goods. It will be remembered that when Schools of Design were being established in London, the opposition to their introduction was almost universal, when at length some indication of their necessity began to be evident in 1837. Haydon, who was the main cause of their foundation, although he never participated in the advantages others derived from them, when speaking with Poulett Thompson, "told him he had heard that it was resolved that the study of the human figure was not necessary." "And is it," he said, "to fellows who design screens?" "What," said Haydon, "would Aristotle have said to this, after declaring that study increases the perception of beauty?" "I told him the figure was the basis of all design, of which he seemed totally incredulous. I proved to him that the figure was the basis; that the same principle regulated the form of a milk jug, and the drawing of the heroic limb, that if the figure was not the basis of instruction in the proposed Government schools, the public money would be thrown away." It is to the study of the

antique that our ablest artists owe their main success as designers of carpet patterns and articles of furniture. It is to the frequent observation of the best types of art in the museums and public places of Paris that the skilled artisans of the French capital, unconsciously acquiring knowledge from their earliest childhood, attribute whatever super-excellence they possess in the production of the various industrial art objects for which L'utopia has been famous for centuries. As we have already ventured to direct attention to the fact that there are a very considerable number of fine moulds from Florentine and Roman collections in London which have never been cast from, it may be worthy of consideration whether an association of intelligent people could be formed this year, whose subscription and co-operation would enable them to form the nucleus of a "Gallery from the Antique," which might eventually be supplemented by a government subsidy.

We do not make this suggestion solely on our own responsibility, but on the urgent solicitation of a few friends who are able and willing to contribute their money and time towards forwarding this truly laudable purpose; and as there is already in existence an admirably arranged architectural museum of casts from the most important ecclesiastical monuments of Great Britain, which has served the purpose for which it was founded, there is but little risk to be apprehended of falling into the errors from which the museum to which we refer has happily escaped.



THE COWSLIP BALL. PAINTING ON CHINA, BY MRS. SPARKS.



REVIEWS.

Art Embroidery. A Treatise on the Revived Practice of Decorative Needlework. By M. S. LOCKWOOD and E. GLAISTER.

WE looked forward to the publication of this volume with great interest, fully believing that it would treat of a subject of great importance to many, and in which, doubtless, there is great scope for improvement.

The first chapter is about the best in the book; the second, speaking of design, condemns "glaring inaccuracies to be met in patterns or decorations,—such as strawberry leaves attached to a carnation flower." With this we fully agree, remembering at the same time that we have seen chrysanthemums with aster leaves (*vide* plate 4), a fact which the authors have apparently overlooked.

However excellent the hints given as guides to colour in Chapter III. may be, we dissent from the premises that colour is second to design; the latter may be acquired, whilst the former is a gift capable of improvement, perhaps, but not to be concocted from any such recipe.

In speaking of "methods and uses," the authors complain that "it is difficult, if not impossible" to have private designs transferred to materials. Can it be that they ignore the schools of art needlework, and at least one leading firm, which devotes itself to meet this ex-

igency, or is it that they are ignorant of their existence? We scarcely can imagine it, nor do we see the necessity for making any such apology for inserting the pages which immediately follow.

Referring to church embroidery, the view taken is painfully insular; why "our churches" should be supposed to furnish a history of sacred art needlework to the exclusion of other denominations and countries, is beyond our ken; to us it seems a question of patterns and stitches, not of religion.

On the whole, this volume may be of use to some, and of interest to many, whilst the book is so beautifully got up, that it will be a welcome addition to the drawing-room table; but we consider that the subject has not been exhaustively treated, and that there is still room for much useful writing upon it.

Floor Coverings, with Hints on their Selection. By J. and R. SMITH. Benson and Holme, Liverpool. 1878.

This neatly printed contribution to our general knowledge of household art is infinitely more practical than any of the many guides to taste which flood the market at the present time. Messrs. J. and R. Smith are carpet warehousemen at Liverpool; they have made carpets their special study, and whilst they give with the experience of experts instructions in the selection of carpets of all kinds, they do not neglect the even more practical details of measurement requisite for forming an opinion of the size and cost of a carpet.

NEW INVENTIONS.

NEW PHOTOGRAPHIC TRAVELLING APPARATUS.



DURING recent years compendious photographic apparatus for dilettante artists have been constructed in various ways. The transport on journeys, however, as well as the manipulation in the atelier, or in a study, usually were combined with almost insuperable inconveniences. The numerous chemicals which were necessary for preparing the plates, as well as the evaporation of the same, and frequently an unavoidable

injury to adjacent objects, prevented the delightful art of photography from becoming more general. Besides, the transport on journeys of many little bottles filled with easily inflammable materials was very cumbersome.

The students devoted to the investigation of photographic science have searched for years for a method which would enable them to dispense with the preparation of the plates by the wet process so sensible to the influence of the light. Endeavours were made to substitute a more ready mode by the dry process, and this has not only been accomplished, as is well known, but has been developed recently to almost absolute perfection. Perfectly sensitive (to the light) the prepared glass plates may be purchased, which require only to be placed in a small camera obscura to obtain immediately an excellent photographic view of any landscape or place, of a picture, a machine, an anatomical preparation, or in the case of a microscopical object, if the camera obscura has been placed in connection with a microscope.

To the court photographer and chemist, Fr. Wilde in Görlitz, the credit is due of having carefully examined and improved this new method to such a degree that any one, after carefully mastering the full details, will be able to produce in the most satisfactory manner photographic pictures; Romain Talbot, manufacturer at Berlin, who has been indefatigable to adapt photography to purposes of science and art, has succeeded in making the necessary apparatus available to every one at a very low price. He has constructed a photographic camera, which, provided with all requisites, may be easily packed together in a small knapsack, and any one without previous preparatory knowledge, and without being obliged to carry any chemicals with him, may by means of this instrument take excellent photographic views.

Two very remarkable improvements in musical instruments are occupying the attention of mechanics and musicians at the present time, which are of more than usual interest; the one bears upon the prolongation of a piano-forte note at the will of the performer. Hitherto the note could not be sustained after the finger was removed from the key. By Messrs. Kirkman's new invention, the same note can be made to sound for a lengthened period at the will of the performer. To accomplish this object a double set of hammers is required; these are fixed by delicate watch-springs to a hollow brass rod, extending nearly the entire length of the instrument, and they are set in motion simultaneously by a treadle action of an additional pedal. This treadle causes a fly-wheel to revolve at any required speed, which in its turn communicates a vibratory motion to the brass rod upon which the hammers are fixed. An action similar to that of a row of electric bell-hammers is now set up, but somewhat short of striking distance from the strings; but on pressing down a note on the key-board, however softly, the handle of the still vibrating hammer is depressed, and, coming in contact with the wire, produces the effect of either a *tremolo* or a sustained note, in proportion to the speed with which the treadle is worked. Thus it will be seen that the *tremolo* would have a soft, and the sustained, a loud tone, so that here the additional advantage of a swell is attained, as perfect as that effected by the expression stop of the harmonium.

The manipulation of the keys for the melo portion of the instrument is precisely the same as the creeping movement required for the organ, excepting when it is desired to add the force of the regular hammers, when the movement would be that in use for performance on the piano. The amount of volume of sound produced when the instrument is put to its full power is perfectly astonishing, though perhaps not more so than the suddenness with which it can resume the softness of a dulciana and stopped diapason effect on a small organ. The quality of tone is difficult to describe, as, although a stringed instrument, the melo-piano partakes very much of the tone of a harmonium; its full beauty can, however, only be appreciated by hearing its effect. Its introduction certainly should mark the commencement of a new era in piano manufacture.

The second improvement in existing arrangements, to which we refer, relates to organ pipes, which at the present time give out but one note each on the reed being acted upon in the ordinary way. But there is no reason why an organ pipe could not be rendered as capable of giving out as many distinct notes as a flageolet or flute, by merely attaching to it a series of valve stops at certain intervals throughout its entire length, their action being as easily controlled by the player as the key notes of the lesser instruments we have named.



NOTES.

IVORY carvings of all ages and periods, from the ancient fragments of highly finished work found occasionally in Assyrian tombs, Egyptian monuments, Greek temples, and Roman palaces, as well as those equally ancient carved ivory objects of Scandinavian, Japanese, and Chinese origin, which are scattered at the present day all over Europe, in private cabinets and public museums, will be collected together

and texture. We hope to give several illustrations of choice specimens of carved ivory in statues and other forms of art workmanship of great importance, and of known historic value.

ENGLISH INDUSTRIAL ART will be fairly represented at the forthcoming Manchester Art Treasure Exhibition, the committee having already secured a large number of specimens of rare and costly objects illustrative of various periods. In foreign products of Art Industry the collection will be exceedingly rich, private collectors having come forward with selections from their treasures, which have never before been accessible to the public generally. Japan and China



CARPET PATTERN FOR THE AUSTRIAN COMMISSIONER'S PAVILION.

in the exhibition to be held at Florence during the present year.

Attention will be drawn more particularly to the ivory carvings of the thirteenth century, when a revival of the art began to manifest itself in Europe. Ivory, of all known materials suitable for the sculptor's art, is the most esteemed, its limited surface capacity being its sole obstacle in the way of general adoption; but large works have been frequently produced by skilfully concealing the joinings or by resorting to a system of inlaying or working in small panels. In no instance have either ancient or modern workers in ivory succeeded in spreading out ivory as the Japanese have succeeded in spreading bamboo cane bark into large flat plaques, which in a great measure resemble ivory in surface

will be illustrated by numerous examples of both ancient and modern workmanship. It is reasonable, therefore, to expect that advantage will be taken to provide an illustrated catalogue to the fine things shown on this occasion.

IT IS THOUGHT POSSIBLE to establish a glass manufactory in India, where the materials for the purpose are abundant and cheap. The difficulty experienced by a Punjab Brewery Company in obtaining glass bottles has set the enterprising manager of that concern to inquire into the nature and structure of the glass manufactured by the natives at Sultanpore in the Jelum district, and a German workman having offered his services, there is some prospect of success for a venture which is capable of infinite extension in British India,

doing away with the cost of imported glass articles of English or Belgian manufacture, the package and freight of foreign goods in most instances doubling the cost of the articles sold in the bazaars.

JUST now the Bazaars at Stamboul, as the people call that portion of Constantinople where the Turkish inhabitants for the most part reside, are full of fine things brought there by speculating Jews, keenly alive to the fact that enterprising English houses have sent out purchasers, in the hope of picking up antique art manufactures of various kinds and nationalities. But the goods offered are generally selected in Vienna, Buda Pesth, and other towns, and these are consigned for sale to the expert dealers in Stamboul, who know their full value, and what is better, who know how to sell for the highest price they dare ask whatever strikes the fancy of the inexperienced buyer.

At present Bulgarian silver ornaments of a quasi-Greek form are being offered to buyers, with the assurance that they are of great value owing to their antiquity. We shall see.

THE strike amongst the Lancashire operatives is likely enough to deal the finishing blow to the trade in English cotton goods. The foreign producers who have of late years been underselling us in our home and foreign markets are busy now in pushing their trade everywhere, in the hope of driving English manufactured goods quite out of the market. They count as on their side the increased cost of labour in England, the short time system, and the greatly enhanced price of machinery and factory repairs, compared with their own low prices for wages and material. Both employers and employed should look at this grave aspect of affairs steadfastly, with a view to the settlement of the difficulty in the face of the wily competitors with whom the real struggle rests, before it is too late to find any remedy.

MR. NORMAN MCLEOD, of the Science and Art Department, sent the following to the Rev. Henry Solly, in reply to a memorial of the trustees, principal, and teachers of the Artizans' Institute, Castle-street, to the President of the Council, the Duke of Richmond and Gordon, requesting an interview on the subject of a grant for practical and efficient technical education:—"I am directed by the Lord President of the Council to inform you that his Grace has read the memorial from the trustees, principal, and teachers of the Artizans' Institute with much interest. It would appear from that memorial and from the programme of the course of instruction in the Institute that the object of the memorialists is to obtain State aid towards instruction in the practice and details of certain trades. The Lord President is fully alive to the very great importance of such classes as are referred to in the memorial, to workmen, and especially to the apprentices and younger men, in learning those branches of their trade of which they may not otherwise have an opportunity of acquiring a knowledge, and thus fitting them to become foremen and managers. His Grace would be glad to see such classes far more extensively established than is at present the case in all parts of the country. But it is a question whether such instruction should be afforded at the expense of the State, or defrayed by the workmen whose immediate interest and advancement in life are so directly concerned, aided as far as they may be by trade guilds and organisations, which, it is hoped, may take up this important matter. The Artizans' Institute appears to concern itself more especially with the building trades. It will be evident, however, that State aid, if granted to them, must be extended to all descriptions of industries practised in the country. It has not hitherto been considered the function of the Science

and Art Department to teach the practical application of science and art to industry, or the industries themselves. Its aim has, on the contrary, been to aid the industrial classes in obtaining a sound and thorough knowledge of those branches of science and art which may be so applied, leaving it to the student to specialise his knowledge, and turn his attention in any direction he may find most suitable, and to obtain his practical skill and knowledge in the workshop or in the trade. The subjects of science, towards instruction in which aid is given, include the more general applications of science to industry, as building construction, machine construction, mining, metallurgy, and agriculture. But in these cases the broad principles of the industry generally only are treated, and in no case is an attempt made to deal with the practice of specific trades or handicrafts. The instances given in the memorial cannot be considered departures from this principle. Laboratory practice in chemistry is only a means of instruction in pure chemistry, it is not even applied chemistry; modelling is as much a branch of pure art as drawing or painting. An extension of the action of the Science and Art Department in the direction prayed for by the memorialists, even if it could be successfully undertaken by a State department, must entail a vastly increased expenditure, which it is doubtful if the House of Commons would sanction. Under these circumstances the Lord President does not think any good purpose would be served by his receiving a deputation to give further explanations with reference to the wishes of the memorialists, and to the operations of the Artizans' Institute, the general scope of which is clearly explained in the papers before his Grace."

"M. MEISSONIER will exhibit at the International Exhibition a remarkable painting, which he completed in the course of last year, and the subject of which is the review of the Cuirassiers by Napoleon I. on the eve of the battle of Leipzig. Tradition says that one regiment displayed on this occasion a military ardour, a passionate enthusiasm, which went beyond all bounds, and that on the following day they fought with such desperate rage that not a man survived. The Cuirassiers in M. Meissonier's picture dash up from the left in a mad gallop, trampling under foot the standing corn, and wildly hailing the Emperor, who is seen, on a slight eminence a little to the right, surrounded by his staff. They are led by their colonel, who rides in advance, his bare sword clutched and waved above his head, and obey his signal by presenting arms; but the disciplined movement of parade is animated by an intense passion, which gives a peculiar and varying physiognomy to the action. The space to the right, across which the Cuirassiers are about to pass, is held by a detachment, in front of which are three mounted 'Guides.' These three figures are of extraordinary nobility and beauty. The immobility of their attitudes and the solemnity of their regard not only give an immense value to the furious oncoming of the Cuirassiers, but profoundly impress the imagination. In their impassive and heroic calm they bring before us all that there is of poetry and tragedy in the scene, as these martyrs of glory sweep by and with sacred enthusiasm devote themselves to death under the eyes of him they serve. This episode of the review before the battle of Leipzig has evidently taken strong hold on M. Meissonier. For some six years past or more it has again and again occupied his attention. The composition has been profoundly studied, and the energy and depth of sentiment with which the subject is treated heighten the value of the picture as a work of art, and contribute to render it one of the capital works, if not the capital work, of the modern French school. M. Meissonier's qualities as a

painter and as an artist, that is to say as something more than a painter, are known to all the world ; but here we have not only the painter and the artist, but something more than both—the man. It is now rare indeed to see a work by a consummate artist in which the moral aspect of his subject has been so profoundly felt. It is to be regretted that M. Meissonier's picture has been sold to an American, for it should never have been permitted to leave France.

"M. Gérôme will exhibit a large painting, on which he is still at work. The subject is the reception at Versailles of the Prince de Condé by Louis XIV. Condé stands with his back towards us at the foot of the grand staircase, now no longer existing, but which has been carefully worked out by M. Gérôme from the original plans, which are still preserved. To right and left are pages and guards, bearing banners torn from the enemy. At the top of the staircase stands Louis XIV., and on the landing behind him the great personages of the Court are ranged two rows deep. It is a curious thing to see an artist of M. Gérôme's great intelligence and standing selecting a subject which does not offer a single head. Condé turns his back as, bowing, he prepares to mount the steps ; Louis XIV., at the top of the staircase, is merely the conventional 'Grand Monarque,' and as for the Court, they are mere puppets in the play, wearers of splendid costumes and dancing feathers. The point which is really noticeable in the picture is the skill with which the two chief actors are brought into relation with each other, isolated, yet put into line by the ascending flight of stairs. The episode, which in itself has scarcely the importance of a page of history, presents great opportunities as a scene of magnificent ceremonial display, which M. Gérôme has effectively turned to account. Nothing has been omitted that would help to indicate the space of a vast palace, the state, the pomp, the splendour of a great Court."

THE DECORATIONS OF THE PARIS PANTHÉON are still being carried on with great zeal. Besides the legend of St. Geneviève, M. Baudry has lately been commissioned to execute four large wall paintings in the chancel, and has chosen for his subject four scenes from the history of Joan of Arc, namely, *The Vision*, *The Interview with Charles VII. at Chinon*, *The Taking of Orleans*, and *Joan in the Prison at Rouen*, with Pierre Cauchon, Loiseleur, and the English. Other episodes from her history will also be introduced by M. Baudry into the decorative frieze that runs above the paintings. The work, it is stated, will occupy the artist for about three years. Nor is it by painting only that the Panthéon is to be made beautiful. Two colossal statues, one of St. Bernard modelled by F. Jouffroy, and another of St. Jean de Matha by E. Hiolle, have just been placed in it, making four of these grand statues already installed, and others are, we believe, in preparation.

THE SUBJECT OF EXHIBITIONS organised by clubs is just now receiving much attention among Parisians, says our friend M. Ph. Burty, from those critics whose thoughts are directed to the general organisation of the Beaux-Arts. It will be difficult to induce the Government to give up the direction of the Fine Arts, because that direction becomes a political engine in its hands. It is difficult also to make a nation but newly democratised understand that the State ought not always to continue the traditions of the monarchy, but ought to allow artists to strengthen themselves by the exercise of their liberty. In the meanwhile the annual Salons have become a great weariness to the public. That public sees plainly that they are only huge sales with guarantees and privileges such as are not accorded to any other kind of

intellectual merchandise. It clearly perceives that under the pretext of encouraging "high art" encouragement is only given to a high degree of mediocrity. One can but hope that the public will come to understand how well party exhibitions, got up by rival sets, will act as salutary checks to the annual Salons, and will restore these to their position of honour, while giving to truly national talent more chance of triumph over the *savants*, falsely so-called, who return from Rome exhausted or overbearing. These great questions are now under consideration by a committee of the Chamber. A Parliamentary committee has been appointed, under the presidency of M. Charton, to consider the reorganisation of the *personnel* of the administration of the Beaux-Arts. This is by no means a question of political feeling, although this administration is the same as it was under the Empire, which is the same thing as saying that it is justly suspected of bearing the greatest grudge against existing institutions, and of impeding their action. M. de Chennevières is much bullied on account of the clerical decoration of the Panthéon. Nevertheless he is an able man. Perhaps, in spite of all, he will retain the direction of the Beaux-Arts until the Great Exhibition, owing to the dread of too far disorganising the service before this solemnity. In any case it is almost certain that marks the outline of your monuments, is so lifelike a composition that it is readily understood at first sight, and calls forth the applause or the curiosity of the public, who feel instinctively that the portrait is correct."

M. HÉBERT is engaged on his designs for the choir of the Panthéon, which consist of a series of detached figures, Christ and the Apostles, executed on an embrowned gold ground. In preparation for their execution, M. Hébert has made elaborate studies from the most remarkable remains of Byzantine art.

M. HENRI LEVI has nearly completed his decorations for the chapel of St. Méry, in the Rue St. Antoine. These decorations treat of various scenes in the life of St. Méry, and before they are placed in the chapel for which they are destined it is proposed to exhibit them publicly during the months of May and June.

THE MANY ARTISTIC treasures of Hildesheim Cathedral that have been reproduced with admirable fidelity and effect for the South Kensington Museum, are already in their places. Beside the great choir-screen, the eleventh-century doors, the two tombs with their rudely carved figures, and the magnificent brass corona in the South-east Court, a number of smaller works of great interest are to be found in one of the cases of the South Court, consisting of candlesticks, chalices, statuettes, etc., copied from originals in the treasury of the Cathedral, many of which are supposed to have been the work of the famous Bishop Bernward, who, as is well known, not only patronised and encouraged the artist-workmen of his time, but himself worked in metal with great skill. From this treasury may be noticed also a very rich shrine, which has been added only very recently to the South Kensington collection. This shrine or reliquary is in the shape of a tower, said to be exactly of the same form as the old tower of the church. All round it are niches filled with delicately worked little images of the Virgin and various saints ; and at the top are two flat discs placed upright, and nearly touching one another, on one of which is engraved a representation of the Crucifixion. If these peculiar discs were copied from anything of the sort on the summit of the old tower, that must certainly have been a most remarkable architectural monument. The original of this beautiful little reliquary, which stands about a foot in height, is of oak,

silver gilt. The cast has likewise been gilded. It is at present somewhat too new and gaudy in effect, but its brightness will, no doubt, soon get tarnished, and the delicacy with which all the little details of the carving are rendered makes it really as valuable for all purposes of study as the original work. While praising these interesting reproductions, it is but fair to state that they are all executed by a Hildesheim artist, F. Kusthardt, who devotes himself almost entirely to work of this kind. His casts, which are worked up afterwards from the originals with great skill and artistic knowledge, have none of the heavy lumpish effect common in works of this kind. They reproduce the feeling of the original as well as the mere workmanship.

M. BARDOUX has given the decoration of the Legion of Honour to the oldest schoolmaster of France, who has been teaching since 1818 in the very parish where he was born. The ceremony took place at Clermont-Ferrand at a dinner given by the Prefect in honour of the Minister. The whole scene is said to have been very impressive.

THE MUNICIPAL COUNCIL of Paris has appointed a Commission of ten members in order to take part in the proceedings of the French Association for the Advancement of Science, which will take place at Paris, during the present month. They will sit in their official capacity.

A FRENCH INVENTOR, M. BRÉGNÉ, has recently completed a so-called mercury telephone, which is quite a variation on the systems already in use. It is composed of two instruments for transmission and reception, connected by means of wires. Each of these consists of a glass vessel, containing acidulated water and mercury, into which is inserted a capillary tube filled with mercury. One wire connects the mercury in the tubes, and the other that in the vessels. When a person speaks before the transmitter, the vibrations of the air are communicated to the mercury, and cause variations in the electromotive force, which are transmitted to the receiver, and there give rise to vibrations of the air appreciable by the ear. A later simplification of the apparatus consists in using a tube with alternate drops of mercury and acidulated water, forming thus a series of electro-capillary elements.

THE INTELLECTUAL ABILITIES of the Japanese have been evidenced in a striking manner by a quartette of students from that country now studying in Berlin. One of these, Dr. Dirokita, has lately invented an ingenious optical instrument termed the leucoscope, which measures the variations in the perception of light and colour by the human eye, in accordance with the strictest mathematical laws. Another, who has attained the rank of lieutenant in the Prussian army, has introduced a remarkable simplification into the mechanism of the Mauser rifle, which has succeeded the historic needle-gun. Two more who are prosecuting their chemical studies under Prof. Hofmann, have published for two years past several interesting synthetical researches on the aromatic series.

PRINCE LOUIS NAPOLEON, at the annual dinner of the Institution of Civil Engineers, spoke to the following effect. "The Emperor was always deeply interested by scientific questions, and even before he ascended the throne he showed that interest by taking an active part in the debates of this institution. He understood that in times like ours, when science is making such rapid progress, every man who has high aspirations is bound to increase his knowledge and to associate himself with the work of those who like you, gentleman, labour for the greatest good of humanity. When he

became Emperor of the French, faithful to this principle, he encouraged on a large scale great public works, and he showed his esteem and his sympathy for the men who accomplished them in every circumstance. Our century has witnessed great deeds of all kinds; many battles have been fought by man against men—however, this is neither the time nor the place to speak of them; others have been fought by man against nature, and in that field success has not failed to crown his most assiduous efforts. Among the conquests which have been achieved in our days, none have been more beneficial than the peaceful triumphs of industry. These will not disappear with the present generation, but will remain and be of use to future ages. Of the victories thus won the honour belongs mainly to the profession of the engineer, and, therefore, it is with feelings of legitimate pride I remember that my father belonged to your institution. I am glad, therefore, to take this opportunity of expressing to the Civil Engineers my profound esteem and my heartfelt wishes for the continued prosperity of their most useful and admirable institution."

BELGIUM occupies an eminent position among the foreign nations represented, as, indeed, may at once be inferred from the number of her exhibitors and the space assigned to the Belgian section in the Champ de Mars. The number of the exhibitors is estimated at 2,400, and the façade of the pavilion is 60 mètres in length. To this, it may be added, that the exhibits surpass in beauty and in quantity those displayed at any previous Exhibition. The Belgian façade, which has already been described in a previous number of this journal, is without doubt superior in style and construction to that of any other nation. A hundred and fifty thousand francs have been expended on this erection, and, including the material, the cost of the façade may be estimated at a round sum of a half a million of francs. In the interior decorations of her galleries, and the careful distribution of the exhibits, the Belgian section is inferior to no other nation, and superior to many. Draperies and rich hangings fall in charming arrangements, from the escutcheons of the nine provinces and the principal towns. The windows and cases, constructed from designs furnished by the Commission, are elegant and uniform. The exhibition of lace may, without exaggeration, be written down wonderful, the best manufacturers having this year fairly surpassed themselves in the elegance of their work. The machinery department promises well, as it is to be hoped that this promise will be fulfilled, for as yet few contributions to the gallery have arrived, and the admission, it will be remembered, was to close on the 20th of April. The machinery department is now the most backward; in fact, the only backward section of the Belgian exhibition. But there is still ample time to remedy this delay. It is reported that M. Gallait, the first of Belgian artists, will not be represented by a single canvas in the fine art section. M. Gallait has entirely devoted his talents during the last ten years to the historic portraits that decorate the Senate House, and as the authorities refuse to sanction their removal, and no work that is not at least ten years old will be received, this report, it is to be regretted, is only too true. The absence of several other distinguished Belgian artists will be remarked, and sculpture, as regards quantity at least, will be only meagrely represented.

A FINE SERIES of antique bronzes discovered at Cagli in the beginning of April was exhibited by Signor Mochi. Among these bronzes the finest is a woman's head, a little less than life-size, representing possibly a goddess. The other fragments belong to statuettes of various styles. One statuette,

perhaps a Hercules, which is intact, shows on the feet traces of the process of founding, from which it may be supposed that it was never manufactured for use. This fact has induced some to believe that the bronzes here discovered indicated the site of an ancient Umbrian foundry; and what tends to confirm this view is that with the bronzes were found fragments of terra-cotta vessels, such as are used by founders. These antiquities were presented to the municipality of Cagli.

AN EXHIBITION OF ANCIENT AND MODERN PRODUCTS of the art of the goldsmith was opened in Gmünd, the capital of the Swabian gold-industry, on April 15. It is enriched with some of the fine works from the collections of the King of Württemberg and of Prince Karl of Prussia; the Gewerbe-Museums of Berlin, Stuttgart, and Karlsruhe have lent from their stores; while the churches, and the antiquarian collections of many towns, have also been large contributors.

AN EXHIBITION OF GAS APPARATUS, to be held in the Birmingham Town-hall, in June, is projected by the corporate authorities of the town. The object in view is to extend the use of gas apparatus for cooking and warming purposes, and to enlarge the application of gas to trade purposes, which are not generally known. There will be eleven classes, and a silver medal will be given to the best exhibitor in each class.

THE QUESTION OF EXPENSE, says the *Queen*, is a very important one to all those who propose visiting Paris this year, and it is a matter about which a little practical information seems needed. I read with surprise the paragraph quoted in your "Notes and Queries" last week. Where the correspondent of the *Daily News* could have found mutton chops "not of the first quality, with a quantity of bone, grease, and gristle, at half-a-crown a pound," I do not know. My butcher is now selling meat at the following prices: mutton chops, 16*d.* a pound; roast beef, at 16*d.* and 17*d.* a pound; ordinary leg of mutton, at 13*d.*; and pré-salé, at 15*d.* a pound; the best pieces of veal, at 14*d.* a pound. Let it be remembered that the French pound is one-tenth larger than the English. He tells me that he expects to increase these prices by 1*d.*, or perhaps 2*d.*, a pound during the Exhibition, but certainly not more. As for the apartments in the Rue Tilsitt, which is now one of the most fashionable streets in Paris, in the midst of the most expensive quarter, I question whether at any time furnished apartments could be found there for less than 16*l.* a month with more than two bed-rooms, and that on the upper floors. Neither cabs, omnibuses, nor tramways are to be increased in price. A fiacre with two or three places costs 1*s.* 3*d.* the course and 1*s.* 8*d.* the hour, and visitors to the Exhibition may be conveyed thither by tramway or omnibus from any part of Paris for 3*d.*, and there and back by railway from the Station du Havre for 1*s.* 3*d.* first class and 7*d.* second. The entrance fee to the Champs de Mars and Trocadéro will never exceed 1*fr.* So much to the good. On the other hand, hotel keepers and restaurateurs are, I am told, increasing, and in some cases doubling, their prices. In this they are much blamed by the Parisians, who fear that foreigners and provincials may be kept away altogether, or their stay shortened to meet the exigencies of their purses. I must not forget to add that I particularly noted the prices printed on the *carte* of one of the restaurants opened in the interior of the Exhibition, and found them excessively moderate. Now at Vienna everything was exorbitant—hotels, restaurants, cabs, the entrance fee to the Exhibition, besides every insignificant nick-nack to be obtained at the shops.

LIST OF ILLUSTRATIONS.

	PAGE
Vase of rich umber and soft green colour, with rich foliage decorations in fused glaze, produced at Haviland's porcelain works, Limoges and Sèvres	123
Initial letter I, from an old 15th century MS.	123
Painting on china, by Mrs. Sparks, for the Paris Exhibition, in the Howell and James collection of Doulton ware	124
Two vases of quaint design from Mr. Haviland's collection of fused china at the Paris Exhibition	125
Chest of carved ebony inlaid with gilt bronze and silver castings and repoussé work	127
Specimens of cut table-glass, to accompany the group already figured on p. 88	129
Casket of embossed Spanish leather work	131
Group of quaint 18th century beakers and other pottery of Flemish design copied from original works of art, and affording materials for designers in England and the Continent, who have made numerous combinations from these original forms as the demand for glazed pottery increases	132
Vase of Haviland ware of rich orange-green and purple, with floating figure in high relief attached to the surface in soft terra-cotta colour, which has a curious and not unpleasing effect	133
Fire-place in the hall of the richly furnished Elizabethan house, placed at the disposal of H.R.H. the Prince of Wales. This admirable specimen of iron-work is from the factory of Messrs. Barnard, Bishop and Barnard, of Norwich	135
Specimen of Haviland's faience in rich warm colours, with vine leaves in high relief in autumnal tints	139
Vase of fused porcelain, manufactured by Mr. Haviland of Limoges. The floating figure in high relief is a novel feature in pottery, which gives one new ideas of art decoration capable of unlimited extension, although entirely departing from the classic form, and therefore likely to be considered by some as a "caprice"	141
Painting on china, "Cowslip ball," by Mrs. Sparks, from the exhibition of Howell and James at the Paris Exhibition	143
Quaint old English silver gilt fountain of the 15th century	144
Vase with abrupt lip and depressed handle of Greek pattern, evidently borrowed from the archaic designs in common use amongst the Etrurians	145
Carpet pattern of rich and effective design, from the Austrian section of the Paris Exhibition	146
An engraved portion of the Austrian Diploma granted to students in the Art Schools of Vienna	151





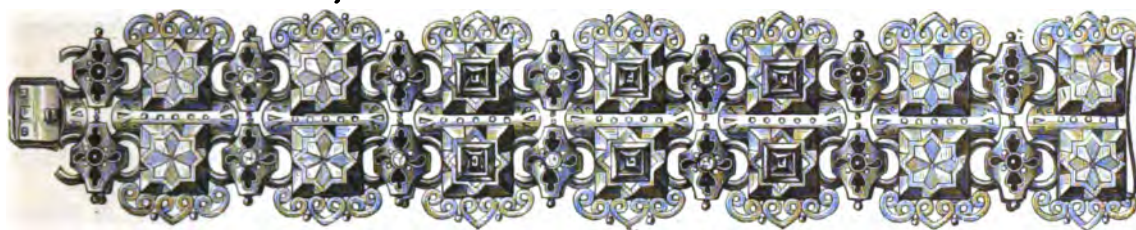
A LIST OF THE PRINCIPAL EXHIBITORS OF INDUSTRIAL ART MANUFACTURES AT THE
PARIS EXHIBITION.

Arrangements have been concluded with many of the manufacturers for the publication of detailed notices of their exhibits, illustrated where necessary by woodcuts. Those exhibitors who have not yet communicated with the Editor are invited to do so at their earliest convenience.

Abrahams, Abrahams, 16, Elgin-road, Harrow-road, London, lamps.
Adams and Bromley, Victoria Works, Broad-street, Hanley, jasper, majolica, and Rockingham ware.
Adams, Thomas, and Co., Limited, Stoney-street, Nottingham, lace curtains, silk and cotton laces, &c.
Aitchison, James, 23, Princes-street, Edinburgh, Scotch jewellery.
Aldebert, Isaac, 57, 58, and 59, Long Acre, London, carriages.
Allan, John, and Son, Wick-lane Works, Old Ford-road, London, paper hangings.
Allen, Charles, 28, Clare-street, Dublin, Irish lace and embroidery.
Allerton, Chas., and Sons, Park Works, Longton, Staffordshire, earthenware, china, table and sanitary ware.
Andrew, Burrows, and Atkins, 59, George-street, Manchester, silk handkerchiefs, scarfs, and dress goods.
Andrews, Michael, Ardoyne, Belfast, table cloths and napkins.
Ashton, F. W., and Co., Hyde, near Manchester, printed calicoes as specimens of printing and finishing.
Autotype Company, 36, Rathbone-place, London, photographs.
Baildon, Henry C., 73, Princes-street, Edinburgh, nature printed ferns.
Bailey, W. and J. A., Alloa, Scotland, Rockingham ware, cut and engraved glass.
Barbour and Miller, 139, Brook-street, Mile End, Glasgow, silk and wool tapestry and piece goods.
Barlow and Jones Limited, 2, Portland-street, Manchester, plain and fancy muslins, quiltings, damasks, &c.
Barnard, Bishop, and Barnards, Norfolk Iron Works, Norwich, artistic forgings, galvanized wire netting, stoves, lawn mowers, &c.
Barrow Flax and Jute Company Limited, Barrow-in-Furness, Lancashire, jute yarn, jute fabrics, &c.
Bates, Walker, and Co., Dale Hall, Burslem, dinner, dessert, tea, &c., ware, sanitary ware.
Benham and Sons, 50, 52, and 54, Wigmore-street, London, chimney-pieces and tile hearths, grates, fenders, &c.
Bertram and Son, 100 and 101, Dean-street, Soho, London, chimney-piece and mirror.
Bessbrook Granite Company, Bessbrook, Ireland, polished granite monuments, &c.
Betjemann, George, and Sons, 36, 38, and 40, Pentonville-road, London, silver sandwich cases and toilet cases, clocks, &c.
Birchenough, John, 145, Cheapside, London, silk dress goods, scarfs, handkerchiefs, &c.
Blackie and Son, 17, Stanhope-street, Glasgow, bookbinding.
Blackie, W. G., and Co., Villafield Works, St. James's-road, Glasgow, letterpress and woodcut printing.
Boulton and Floor Cloth and Manufacturing Company Limited, Worsley-street, Salford, Manchester, floor cloth.
Boyle, Richard, and Sons, 20, Upper Gloucester-street, Dublin, wood carving.
Brewer, W. and R. T., Whitechurch, Hampshire, machine for ornamenting, glazing, and polishing leather, &c.
Brinsmead, John, and Sons, 18, Wigmore-street, London, pianofortes.
Brinton, John, and Co., Kidderminster, carpets.
Brocklehurst, J. T., and Sons, Macclesfield, silk handkerchiefs and scarfs, silk yarns.
Brogden, John, 16, Henrietta-street, Covent Garden, London, bracelets, brooches, chains, &c.
Brooke, Simpson, and Spiller, 50, Old Broad-street, London, dyes, colouring matters, and other productions from coal tar.
Brooks, Robert, Houghton Regis, Sheffield, pianofortes.
Brown, Richard, and Son, 324, Kennington-road, London, organ.
Brown, Richard, W. J., Jun., 324, Kennington-road, London, brass furniture for swing glasses, &c., machine for shaping, &c., the ends of boards.
Brownfield, W., and Sons, Cobridge, Staffordshire, art china, vases, &c., china, earthenware, majolica, &c.
Brownhills Pottery Company, Tunstall, Staffordshire, dinner, dessert, &c., ware, floor, and roof tiles, &c.
Brown-Westhead (T. C.), Moore and Co., Cauldon-place, Staffordshire Potteries, china and earthenware tiles, &c.
Bull and Wilson, 52, St. Martin's-lane, London, woollen and cotton fabrics.
Burke and Co., 17, Newman-street, London, marble pavements, glass mosaics.
Butchart, Lindsay, and Co., Linen Works, Dundee, jute carpeting, Manilla hemp matting.
Cairns, P., 4, Livingston-place, Portobello, near Edinburgh, the Helicon fountain.
Camm Brothers, 41, Frederick-street, Birmingham, majolica panels, designs for decoration, stained glass.

Campbell Brick and Tile Company, Stoke-upon-Trent, encaustic majolica tiles, roofing tiles.
Campbell, Hugh, and Son, Moor Quarries, Newry, Ireland, polished granite monument, &c.
Candy and Co., Chudleigh-road Station, Newton Abbot, Devon, stoneware, bricks, pipes, roofing and paving tiles.
Capel, Henry, 26, Great Titchfield-street, London, art pianoforte music stool, &c.
Carter, John, 6A, New Cavendish-street, London, reading easels, invalid adjustable couch, &c.
Challen and Son, 20, Oxford-street, London, pianofortes.
Chanot, George, 103, Wardour-street, London, violins, viola, violoncello, &c.
Clarke, John Robert, 25, Liverpool-street, Walworth, London, Tunbridge ware, designs formed with various kinds of wood.
Clayton and Bell, 311, Regent-street, London, stained glass windows.
Collinson and Lock, 169, Fleet-street, London, art cabinet furniture, furniture fabrics.
Colthurst, Symons, and Co., Bridgewater, Roman tiles, ridge tiles, scouring bricks, &c.
Constable, William Henry, The Avenue, Cambridge, stained glass windows.
Cooke, Sons, and Co., Liversedge, Yorkshire, carpets and rugs.
Cooke, Thomas, and Sons, Buckingham Works, York, telescopes, clocks, &c.
Cooper, H. and J., 8 and 9, Great Pulteney-street, Golden-square, London, decorative furniture.
Copeland, W. T., and Sons, 160, New Bond-street, London, art productions in porcelain, &c.
Copestake, Hughes, Crampton, and Co. 5, Bow-churchyard, City, London, lace.
Corbier, Sons, and Brindle, 30, Cannon-street, London, tapestry curtains, printed cretonnes.
Corticene Floor Covering Company, 115, Queen Victoria-street, London, floor cloth.
Craven, Dunnill, and Co. Limited, Jackfield Works, near Ironbridge, Salop, encaustic tiles, painted tiles, &c.
Crouch, Joseph M., 203 and 221, Regent-street, London, gold and silver brooches, bracelets, &c., Highland accoutrements, &c.
Crouch, Wm. Albert, 264, Regent-street, London, brooches, earrings, bracelets, &c., Highland ornaments.
Cubitt, W., and Sons, 258, Gray's-inn-road, London, façade in half-timber work.
Daniell, A. B., and Son, 46, Wigmore-street, London, table services, ornamental china, majolica, table glass.
Daniell, R. P., and Co., 129, New Bond-street, London, china, earthenware, and glass.
Davis and Wilson, 37 and 38, Sun-street West, Birmingham, whips, canes, mountings, &c., for same.
De Morini, Charles, 170, Great Portland-street, London, painted and stained glass.
De Rothschild, Lady, Buckingham Palace-gate, London, needlework.
Dickes, William, and Co., Farringdon-road, London, o'eographs, chromolithographs, &c.
Dixie, Mrs. Margaret, 13, Wilmington-square, London, morocco and velvet cases for jewellery, &c.
Dixon, John, Sons, and Taylor, Manning-street, Bermondsey, London, leather.
Doulton and Watts, Lambeth Pottery, London, stoneware, filters, fine art stoneware.
Doulton, H., and Co., High-street, Lambeth, London, sanitary stoneware, terra cotta faience.
Dreaper, W. H., and G. H., 96, Bold-street, Liverpool, pianofortes.
Driscoll, Henry, Steam Mills, Baron-street, Pentonville, London, games, puzzles, toys, &c.
Ebbutt, Alfred C. (Opposite the Townhall), Croydon, Surrey, cabinet furniture and upholstery.
Edwards, John, King-street, Fenton, Staffordshire, white granite tea, dinner, &c., services.
Elkington and Co., Newhall-street, Birmingham, electro-plated goods, repoussé work in silver, &c., damascened works in gold, &c., enamels.
Feetham, Mark, and Co., 9, Clifford-street, Bond-street, London, stoves and grates, artistic iron-work.
Fell, Johnston, and Co., 94, Southampton-row, and 11, 12, and 13, Gilbert-street, Bloomsbury, London, mouldings for picture frames, cornices, &c.
Ferguson Brothers, Holme Head Works, near Carlisle, plain and brocaded, &c., cotton satteens.
Finch, John, 11, Adam-street, Adelphi, London, porcelain bath, fittings for same, &c.

- Flitch, J. J. and Son, Springwell Leather Works, Buslingthorpe, Leeds, moroccos, roans, coloured calf, Russia hides, &c.
- Foley, Arthur, Fisherton Cabinet Works, Salisbury, cabinet furniture.
- Fouracre (J. T.) and Watson, Stonehouse, Plymouth, Devon, stained glass.
- Frampton, E., 10, Southampton-street, Strand, London, painted glass windows.
- Francati and Santamaria, 65, Hatton-garden, London, jet ornaments and jewellery, mosaics, cameos, corals, &c.
- Frodsham, Charles, and Co., 84, Strand, London, chronometers and clocks.
- Garrett, Rhoda and Agnes, 2, Gower-street, London, furniture.
- Gibson, William, Donegall-place, Belfast, jewellery, bog oak jewellery, chronometers, &c.
- Gillow and Co., 176, Oxford-street, London, interior decoration and furniture.
- Glanville, A. F., 13, Tottenham-court-road, London, machines for cutting memorial brass tablets, &c.
- Goggin, Jeremiah, 74, Grafton-street, Dublin, bog-oak bracelets, brooches, &c.
- Gold, Henry, Castle Carriage Works, Francis-road, Windsor, dog cart.
- Goode, Thomas, and Co., 19, South Audley-street, London, etchings and paintings on china, painted porcelain.
- Gordon, James, and Son, Carlton-hill, Woodhouse-lane, a Victoria hansom.
- Gower, Woodward, Wills, and Co., Waterside Mills, Kidderminster, carpets and rugs.
- Graphic, Proprietors of the, 190, Strand, London, whole process of producing an illustrated newspaper.
- Green, Charles, 2, Bank-street, Sheffield, ebony and bronze furniture.
- Green, James, and Nephew, 107, Queen Victoria-street, London, glassware of all kinds, terra-cotta.
- Green, James, 20, Moore-street, Chelsea, London, design for a mosaic floor, designs for ceilings and walls.
- Gregory and Co., 212, Regent-street, London, cabinet furniture and decoration.
- Grimond, I. and A. D., Bow Bridge Works, Dundee, carpets made from jute.
- Grosvenor, Chater, and Co., 68, Cannon-street, London, writing paper.
- Hall, Ralph, and Co., 15, Charlton-street, Portland-street, Manchester, cotton velvets and velveteens, satins, twills, serges, &c.
- Hall, Thomas, 8, George-street, Edinburgh, decorated oak wall panelling and furniture.
- Hambler, Joseph, Piercy Brickworks, West Bromwich, Staffordshire, terra-metallic pavings, copings, building bricks, &c.
- Hardman, John, and Co., Newhall Hill, Birmingham, stained glass windows, hammered ironwork, repoussé work.
- Hare, John, and Co., Temple Gate, Bristol, floor cloth.
- Harland, J. W., 49, Essex-street, Strand, London, door furniture.
- Harrison, R., and Son, 1, Stanhope-street, Euston-road, London, carriage.
- Harry, W. D., and Co., 118, Newgate-street, London, kamptulicon floor cloth, &c.
- Hart, Son, Pearl, and Co., 53, Wych-street, Strand, London, church and domestic fittings in brass, iron, &c.
- Hayes, Henry, and Son, Stamford and Peterborough, cabs and carts.
- Heaton, John Aldam, 29, Bloomsbury-square, London, furniture embroidery.
- Henderson and Co., Durham, carpets.
- Henderson, James, and Co., 60, 62, 64, North-street, Glasgow, carriage, break for same.
- Henderson, Alexander L., 49, King William-street, City, London, ceramic photographs.
- Hillier, James, 12, King's-road, Camden-town, London, organs.
- Hitchins, Richard William, 9, Devonshire-place, Stoke Newington Green, London, rapid system of forming ceilings, &c.
- Hodgetts, Richardson, and Son, Wordale Glass Works, Stourbridge, sculptured glass, patent threaded glass.
- Holland and Sons, 23, Mount-street, Grosvenor-square, London, furniture.
- Holmes, H. and A., 38, Margaret-street, Cavendish-square, London, carriages.
- Holmes, W. M., and Son, 101, Dean-street, Soho, London, carved wood furniture.
- Holt, Frank, St. John's, Warwick, stained glass, designs for same.
- Hope and Carter, Fountain-place, Burslem, Staffordshire, earthenware, table, tea, &c., ware.
- Hopkinson, J. and J., 235, Regent-street, London, pianofortes.
- Horton, John, and Co., Oxford Brassworks, Bailey-street, Sheffield, gas chandeliers, brackets, &c.
- Howard and Sons, 25, 26, 27, Berners-street, Oxford-street, London, cabinet furniture, parquet flooring, &c.
- Howell, James, and Co., 5, 7, and 9, Regent-street, London, decorated clocks, &c., art pottery, English lace.
- Howes, Henry William, Prince of Wales-road, Norwich, carriages and carts.
- Hunter, James, 209, King-street, Aberdeen, polished red Peterhead granite font, &c.
- Ivory, H. A., and Co., Wood-green, London, pianofortes.
- Jackson and Graham, 37, Oxford-street, London, furniture, carpets, curtains, &c.
- Jackson, George, and Sons, 49, Rathbone-place, London, wall and ceiling decorations.
- Jacoby, Julius, 52, Regent-street, London, carved oak furniture.
- Jacques, Zacharia, 6, Upper Abbey-street, Dublin, wood carvings in white wood and bog oak.
- Japanese Curtains and Patent Fabric Company Limited, 15, King-street, Cheap-side, London, specimens of bookbinding in "eltine."
- Jeffrey and Co., 64, Essex-road, Islington, London, furniture and embroidery stuffs, leather-work, paper-hangings, &c.
- Jenkinson, Alexander, 10, Princes-street, Edinburgh, coloured glass, flint glass, &c.
- Johnstone, Jeanes, and Co., 67, New Bond-street, London, cabinet and upholstery furniture.
- Jones and Willis, Temple-row, Birmingham, church furniture in wood, brass, &c.
- Joubert, A., and Sons, 6 and 7, Percy-street, London, art furniture, parquet flooring, &c.
- Julian, Henry, Bow-street, Bolton, carriages.
- Kent, G. B., and Co., 11, Great Marlborough-street, London, brushes, ivory paper knives, &c.
- King, William, Battlesden Steam Carriage Works, Leighton Buzzard, carriages.
- Kulp, H. N. and Son, Nottingham, lace goods.
- Ladies' Work Society, 31, Sloane-street, London, appliqué needlework.
- Lamb, James, 16, John Dalton-street, Manchester, decorative furniture.
- Lamprey, J. H., furniture for chambers of limited area.
- Lascelles, Wm. Henry, 121, Bunhill-row, London, artistic furniture, concrete slabs, waterclosets, water tanks, plant-houses.
- Laurie, George, 17, Dalrymple-place, Edinburgh, designs for wall decoration.
- Lavers, Barraud, and Westlake, Endell-street, Bloomsbury, London, painted windows.
- Lechertier, Barbe, and Co., 60, Regent-street, London, artists' materials, colour, and lay figures.
- Lee, Henry M., 165, Hampstead-road, London, furniture decorated with fern, &c., glass decorations.
- Leprince, L. A. A., 33, Park-square, Leeds, paintings on enamel, china ware, &c.
- Linoleum Manufacturing Company Limited, 144, Queen Victoria-street, London, floor cloths.
- Longden and Co., Phoenix Foundry, Sheffield, fireplace, carved wood chimney piece, &c.
- Looker, Benjamin, Norbiton Pottery, Kingston-on-Thames, ornamental bricks, garden pots, &c.
- Lowson, George B., 9, Adam and Eve-court, Oxford-street, London, inlaid chess table.
- Lucraft, G. S., and Son, 34, Worship-street, Finsbury-square, London, cabinet furniture.
- McCreery, James, 103, Thorndyke-street, Belfast, bog oak jewellery, &c.
- McIntosh, Alexander H., Rose-street, Kirkcaldy, carved oak sideboards.
- McNaught and Smith, 45, Park-lane, London, carriages.
- Maw and Co., Benthall Works, Broseley, Shropshire, encaustic tiles, mosaics, painted tiles, &c.
- Mellier, Charles and Co., 48, 49, and 50, Margaret-street, Cavendish-square, London, antique furniture, &c.
- Millar, John, and Co., 2, South Saint Andrew-street, Edinburgh, cut and engraved table crystal glass, tea and dessert ware.
- Minas, James, Mariners-lane, Norwich, wood carvings.
- Minton's, Stoke-upon-Trent, vases, dinner, dessert services, &c., in painted earthenware, majolica.
- Minton, Hollins, and Co., Stoke-upon-Trent, encaustic tiles, ceramic mosaics.
- Mitchell Brothers, Albert Works, Waterfoot, near Manchester, table covers, feet carpets, &c.
- Monington and Weston, 9, Camden-street, London, pianofortes.
- Morgan and Co., 15, Long Acre, London, carriages.
- Morton, Wm. Scott, and Co., Caledonian-crescent, Edinburgh, cabinet furniture, tapestry hangings, &c.
- Murphy, Joseph, and Son, Lurgan, Ireland, damask table linen, sheetings, shirtings, &c.
- Nairn, Michael, and Co., Kirkcaldy, Scotland, floor cloths, oil cloths, and linoleum.
- Neal, John, and Co., 44, 46, and 48, Edgware-road, London, goldsmiths' work, jewellery, watches, &c.
- Newman, Mrs. Charlotte, 399, Euston-road, London, decorative panels.
- Newman, James, 24, Soho-square, London, artists' colours, drawing papers, &c.
- Offord, Joseph, and Son, 79, Wells-street, Oxford-street, London, carriages.
- Ogden, Henry, and Son, 126, Deansgate, Manchester, cabinet and upholstery work.
- Oppenheim, William, 75, Newman-street, Oxford-street, London, decorated ebony cabinet.
- Osler, F. and C., 45, Oxford-street, London, articles in crystal glass.
- Palmer and Story, Holme Works, Carlisle, silesias, brocades, and Italian cloths, &c.
- Peel, Joseph, Roker-lane, Pudsey, near Leeds, medallion turning in wood, ivory, &c.
- Pegler, Charles, jun., and Co., St. Paul's-street, Leeds, linen damask napkins and cloths, sheetings, &c.
- Pinder, Bourne, and Co., Nile-street Works, Burslem, vases and jars, dinner and dessert services, general earthenware.
- Pitman and Cuthbertson, 30 and 31, Newgate-street, London, door and wall decorations, furniture, stained glass window.
- Poole, Edward, Chester-terrace, Habberley-road, Bewdley, Worcestershire, designs for carpets.
- Powell, James, and Sons, Temple-street, Whitefriars, London, mosaic for walls, &c., table and fancy glass, &c.
- Randall, John, Madeley, Shropshire, porcelain plaques.
- Rogers, Geo. Alfred, 29, Maddox-street, Regent-street, London, carved wood chimney piece, &c.
- Royal Porcelain Works Company, Worcester, porcelain vases and services, enamels on porcelain.
- Royal School of Art-Needlework, Exhibition-road, Kensington, London, curtains and coverings for furniture, embroidered.
- Royal Windsor Tapestry Manufactory, Old Windsor, Berkshire, tapestry in panels.
- Simpson, W. B., and Sons, 100, St. Martin's-lane, London, decorative furniture, painted tapestry, &c.
- Singer, John W., and Son, Frome, Somersetshire, repoussé work in silver, copper, &c., brass monumental plates, &c.
- Snee, W. A., and S., 6, Finsbury-pavement, London, cabinet furniture.
- Smith, James Muir, 116 and 118, Bayham-street, Camden-town, London, pianoforte.
- Strohmeier, J., and Sons, 169 and 206, Goswell-road, London, pianoforte.
- Templeton, J. and J. S., 128, Crownpoint-road, Glasgow, carpets, door curtains.
- Templeton, James, and Co., 30, William-street, Greenhead, Glasgow, carpets, rugs, &c.
- Thomlinson and Salkeld, 34, Junction-road, London, a piece of decorative furniture made from Chartley marble cement.
- Tomkinson and Adam, Kidderminster, carpets.
- Trollope, George, and Sons, Halkin-street West, London, architectural joinery, wall decoration, furniture.
- Tull, Glanville, and Co., Roupell-street, Lambeth, London, floor-cloth.
- Turpin, M. F. C., 22, Queen's-road, Bayswater, London, parquet flooring, wood carving, &c.
- Vallance, Miss Fanny, 47, Porchester-terrace, Hyde-park, London, embroidery.
- Walker, W., and Sons, 119, Bunhill-row, London, furniture.
- Ward and Hughes, 67, Frith-street, Soho, London, stained glass window.
- Ward, John Charles, 24, Haverstock-hill, London, pianofortes.
- Watherston and Son, 19, Pall-mall East, London, jewellery and silver plate.
- Watson and Co, Churchgate-street, Bombay, Indian furniture, gold and silver jewellery.
- Watson, J., and Son, Moorgate-street-chambers, Moorgate-street, London, India furniture.
- Watt, William, 21, Grafton-street East, London, furniture.
- Waugh and Son, 3 and 4, Gode-street, London, decorative furniture, carpets.
- Webb, Thomas, and Sons, Stourbridge, crystal glass ware, iridescent glass.
- Wedgwood, J., and Sons, Etruria, Stoke-upon-Trent, art pottery.
- Westlake, N. H., F.S.A., Ebury, London, decorated altarpiece, upholsterers and decorators' work.
- Westlake, Samuel, 13, Tabernacle-walk, Finsbury, London, polished wood panels.
- Whitburn and Young, Milford, near Godalming, Surrey, artistic decoration on wood.
- Willis, H. R., and Co., Kidderminster, carpets.
- Wirth, Frères et Cie., Limited, 162, Regent-street, London, artistic furniture, parquet flooring, &c.
- Woodward, Grosvenor, and Co., Stour Vale Mills, Kidderminster, carpets.
- Wornum, Robert, and Sons, 16, Store-street, Bedford-square, London, pianofortes.



"I still adhere to an opinion formed in early life, that practically to recognise the influence of the fine arts on the character and conduct of the nation is the act of a wise government."—LORD BEACONSFIELD.

NOTTINGHAM FINE ARTS MUSEUM.



WE have been favoured with some particulars respecting this, the first Industrial Art educational effort in England owing its origin and inception to a municipal corporation.

It is to be hoped, therefore, that the evidence of a few years' experience of the work done by the Midland Counties Art Museum will stimulate other corporate bodies to move in the same praiseworthy path, so that

the national taste may be elevated and the social and moral tone of the people improved. The present museum owes its origin to the success of an exhibition consisting of pictures and objects of art, belonging to residents in Nottingham and its neighbourhood, supplemented by a loan from the Department of Science and Art at South Kensington, held in the Exchange Rooms of the town in the year 1872. The success of that exhibition has been amply proved by the number of visitors who have availed themselves of the opportunity offered them, an average of 2597 persons weekly being the result of the official returns made by the museum curator to the committee. It was this success which induced the purchase of Nottingham Castle, an ancient building standing close to the town, in a most commanding position and near to the railway station.

With little difficulty a parliamentary bill was obtained, and the trustees of the Duke of Newcastle consented to grant a lease of the Castle and grounds for a term of 500 years, the council to use and maintain the same as a public museum and exhibition. The works of restoration and adaptation have been going on for some time,

and reasonable hopes are entertained that in a few days the whole will be ready for the opening ceremonial, which will be formally conducted by their Royal Highnesses the Prince and Princess of Wales. In order to give some idea of the importance of the undertaking, we may mention that the scheme of classification and arrangement embraces I. Paintings in Oil, old and modern masters. British and foreign schools. II. Paintings in Water Colours, old and modern masters. British and foreign schools. III. Engravings and Etchings, old and modern portraits of British celebrities, landscapes, etc. IV. Miniatures and Illuminated Manuscripts. V. Sculpture, marble and terra cotta. VI. Textile Fabrics, tapestry, embroidery, lace, etc. VII. Furniture and Wood Carving, old and modern. VIII. Pottery, Porcelain and Glass, old and modern, European and oriental. IX. Personal Ornaments, Jewellery, etc. X. Gold and Silver Plate, antique and modern. XI. Carvings in jade, crystal, ivory, etc., and oriental lac work. XII. Arms, Armour and Ornamental Iron Work.

The corporation propose to devote two rooms for the purposes of the Special Loan Exhibition of Ancient Lace and Embroideries. The Lords of the Committee of Council on Education have kindly consented to allow loans from London intended for the Nottingham Museum to be received at the South Kensington Museum, whence they will be forwarded to Nottingham with other contributions from the museum, etc.

In respect of ancient laces, the committee decided to invite contributions of the following classes of work : (a) Pillow Laces—Valenciennes before 1800, Mechlin, Flemish, Brussels, Italian, Genoese, and Milanese, and early plaited thread laces. (b) Needlepoint Laces—Greek and early Italian points, Reticella work, Maglia or Lacis, English samplers of point stitches, collars, jabots, lappets, and flounces done in Points d'Alençon

(including point d'Argenten); point à l'Aiguille (Brussels), point de Burano.

As considerable interest attaches at the present time to all that concerns so novel an undertaking as this of the Nottingham corporation, we have the less hesitation in gleanings from the most recently published historical records of the Castle a few facts that seem of more than ordinary interest.

"Alfred the Great, in his endeavour to wrest the Castle of Nottingham from the Danes, was defeated in 868. It was noted as one of the Five Danish towns; in 922 they were reduced by King Edward, who repaired the Castle. In the year 1013 it submitted to Sweyn, the Danish king; during the reign of King Canute, it was the northern centre of the Danish power in England. Two years after the Norman Conquest, the Castle was rebuilt in order to overawe the people to the north of Trent.

"The governorship of Nottingham Castle was bestowed by the Conqueror upon his natural son, William Peverel.

"After the death of the King, Henry II. gave both his Earldom of Nottingham and possessions to Ranulph, Earl of Chester; the King retained the Castle which he had captured. He was at Nottingham Castle in 1175, where he held a great Visitation of the Forests.

"Richard I. bestowed the Castle on his brother John, which was indeed with him a favourite abode, being within the range of Sherwood Forest, wherein he followed the pleasures of the chase.

"The hanging of the twenty-eight Welsh hostages, youths of high birth, on the ramparts of the Castle in the year 1212, after a fresh revolt in Wales, is one of the foulest crimes recorded in history.

"Robin Hood, the hero of Nottingham and Sherwood Forest, has generally been assumed to have lived during the absence of Richard in the Holy Land, as may be gathered from the following well-known ballad:

'And when they came to Nottingham,
They walked in the strete,
And with the proud Sheryf I wis
Soon they gan mete.
Abyde, thou proud Sheryf, he sayd,
Abyde and speake with me,
Of some tydings of our King,
I wold fayne heere of the.'

"King Henry III. visited the Castle in 1255.

"The celebrated Hugh de Despencer, one of the twelve Commissioners chosen to exercise the Royal prerogative, after the Battle of Lewes was made Governor of Nottingham Castle.

"In 1311 the celebrated and unhappy Piers Gaveston, the favourite of Edward II., was made Governor of Nottingham Castle, and Warden of all Forests north of the Trent.

"The residence in Nottingham Castle of the infatuated Queen Isabella, mother of Edward III., and of her paramour, Roger Mortimer, Earl of March, led to that singular and romantic episode in the career of the young king which has been so frequently celebrated by English

historians. A Parliament was also held by Edward in Nottingham Castle in 1337, and, amongst other wise laws passed thereat, was one for inviting foreigners, and especially those engaged in the manufacture of woollen cloths, to settle in this country.

"King David II. of Scotland, captured in the battle at Neville's Cross, on the 27th of October, 1345, was conveyed prisoner to Nottingham Castle.

"The Court of Chancery was removed to Nottingham Castle by Richard II. in 1397, and the Mayor, Aldermen, and Sheriffs of the city of London imprisoned within it.

"In 1397 the Peers were again summoned to meet King Richard II. at Nottingham, where the Earls of Arundel and Warwick, and others, were impeached by the Earl of Nottingham, who was this year raised to the dignity of Duke of Norfolk.

"During the disastrous Wars of the Roses, Nottingham Castle was continually viewed as a station of the highest importance; but being chiefly in the possession of the Yorkists, its battlements most commonly displayed the white rose.

"King Richard III. in 1485 held a Court at Nottingham Castle, when news arrived of the landing of Henry, Earl of Richmond, and, gathering together an army, he marshalled it in the meadows fronting the Castle, and departed for Leicester on the 21st of August, 1485, arriving there the same evening, and on the next day fought the disastrous battle of Bosworth Field, where he lost his life and crown.

"Henry VII. lay at Nottingham Castle the night before the battle of Stoke Field.

"During the troublous period of the Pilgrimage of Grace in the reign of Henry VIII., Nottingham Castle was a place of the first importance, and was indeed the central point of the Royal preparations to crush that formidable rebellion.

"It is not until the civil war, during the reign of Charles I., that Nottingham Castle became again the seat of important events. It was here that the King called his friends to meet him, and on the 24th of August, 1642, set up his standard within the precincts of the Castle.

"Oliver Cromwell was here in July, 1643, July, 1648, and November, 1650, on his return from the north; and finding the Castle utterly dismantled, 'he was heartily vexed at it.'

"William Cavendish, first Duke of Newcastle, bought the Castle from George Villiers, second Duke of Buckingham, to whose grandfather Francis, Earl of Rutland, it had been granted by James I. By the liberality of this noble family, so long and so honourably connected with the county, the Corporation of Nottingham have been enabled to acquire a lease for 500 years of this historical site and building, so inwoven with the history of our country; and having at an expense of upwards of twenty thousand pounds restored it as a palace of art, it is to be hoped that its future history will be as pacific and civilising as its past has been warlike."

INDUSTRIAL ARTISTS OF SCOTLAND.

AT the recent inaugural meeting of the Association of Scotch Master Painters, held in Edinburgh, Mr. Thomas Bonnar delivered an admirable address, from which the following condensed report has been made :—

Among the first of Scotch artists devoted to decorative work, and who achieved high honour, was Alexander

and expressive treatment. The subjects are taken from Ossian's poems, and from this circumstance the room is named Ossian's Hall. There are several other proofs of Runciman's decorative skill in the same house. The dome of the staircase, for instance, is an excellent specimen of purely ornamental art, while in the outside porch the ceiling is painted in exquisite bas-reliefs. St. Patrick's Roman Catholic Chapel, in Edinburgh, also possesses an important work, placed over the altar. He also introduced an artistic, and at the same time constructive, system of decorative art that appropriately harmonised with the style of the interior arrangements of



VASES DESIGNED FOR THE PARIS EXHIBITION, BY MESSRS. DOULTON AND CO.

Runciman. He was born in Edinburgh in the year 1736. Through the enlightened liberality of the baronet of Penicuik, Sir James Clerk, he was enabled to prosecute his studies in Rome. During Runciman's sojourn in the Eternal City he became deeply imbued with the spirit of art, which breathed upon him from the roofs and walls of the churches and palaces there and in Venice, and he inhaled those inspirations that enabled him on his return to recompense his noble patron by designing and executing in oil, on the ceiling of the drawing-room at Penicuik House, one of the most remarkable productions of decorative art in Great Britain, and to this day it continues unrivalled for splendid pictorial conception and vigorous

the public rooms of that period, the walls of which were invariably panelled. With the assistance of many talented decorators whose names have been lost to us, he was largely employed in adorning these apartments with painted panels placed over the doors and mantel-pieces, representing landscape views of our country which, I may here suggest, in all probability, formed the basis of that special phase of art, that in our time has arrived at such excellence, and by which our artists have justly gained such high repute.

Runciman and his scholars likewise executed fanciful architectural groups in light and shade on panels. Many specimens of these have been brought to light through

the action of the City Improvement Trust, the course of whose operations had rendered it necessary to demolish numbers of houses in the old parts of the town. There can be no doubt of the fact that we must look on Runciman as the truly foremost representative of the decorative element, in what had been a very prosaic craft, and the reviver of that desire for the employment of decoration in our homes which has happily now been accepted and received with public approbation. Runciman had also the distinction conferred on him of being the first native artist officially appointed by the Board of Trustees for the Encouragement of Manufactures, &c., in Scotland, to the position of Master of the Academy for Drawing in 1772. He died in 1785, and was succeeded in this office by the celebrated David Allan, who achieved so many brilliant triumphs in the field of art.

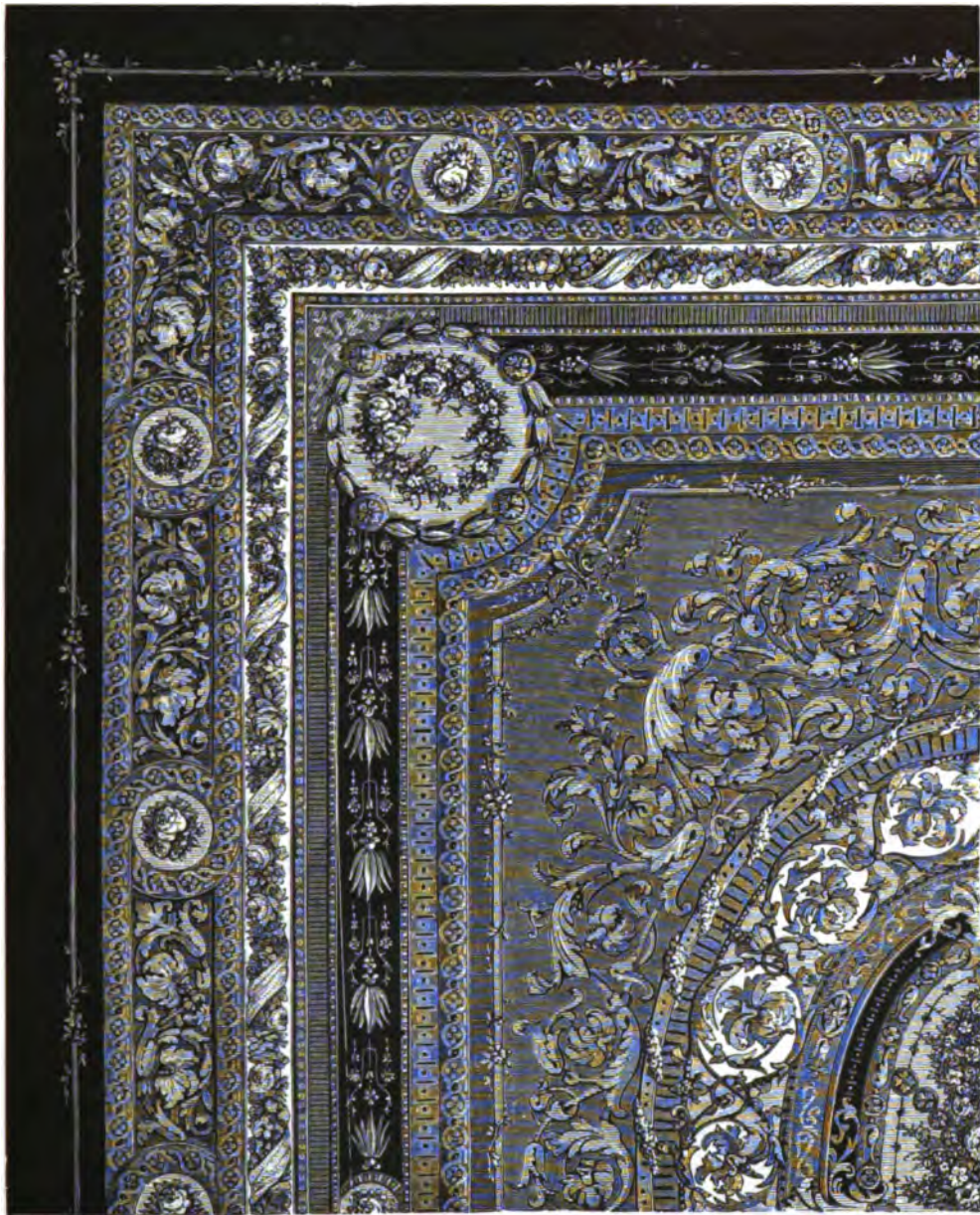
David Allan was born in Edinburgh, but received the rudiments of his art-education in Glasgow, in an academy founded by Robert and Andrew Foulis. He subsequently studied in Rome, where, in open competition, he carried away the gold medal of the Academy of Saint Luke, for the best historical composition, the subject being the Origin of Painting. This picture may be seen at the present time in our National Gallery. The influence of the school, so successfully presided over by Allan and his predecessor Runciman, ultimately became, in the hands of Sir William Allan, the nucleus from which arose the Royal Scottish Academy. Allan, like his predecessors, raised himself by sheer force of genius, to the exalted position of president of that Academy which he had so ably assisted to establish.

The style introduced by Runciman continued to be greatly patronised throughout the country, and employed the youthful efforts of such men as David Allan, Sir William Allan, Stansfield, Ewbank, Fenwick, Roberts, J. Wilson, Kidd, Cooper, Gibb, Balmar, Nichol, and Bonnar, nearly all of whom began their career in the painting establishments of Edinburgh. And not a few of the heads of these painting-shops have become noted for their artistic skill—such names as Coulson, the brothers Norrie, Sommerville, and Clelland, all of whom were good artists, and were well versed in the technical knowledge of decorative art. It is assuredly gratifying to be able to associate such names with our crafts—names that are renowned throughout the length and breadth of the land, and which have gained a position in the very highest rank of the art profession.

However pleasant it may be to contemplate these results, we may, without the risk of being accused of grumbling, ponder for an instant over the questions which they suggest,—or, more correctly speaking, the one question into which they resolve themselves—namely, what would have been the issue had there been a general demand for the works of the mural decorator? To my mind the answer is clear, and carries no uncertain sound in its ring, and may be conveyed in these words:—"Had there been a steady and apparently extending desire for the higher and more artistic forms of decorative art, nearly

all these illustrious names would have remained in our ranks, and would have shed the lustre of their presence over our craft, and by their invaluable direction and aid the mural art of the country might have obtained an eminence equal in dignity and position to that of any country in Europe." The consequences of this lack of encouragement on the part of the public showed themselves in many ways, but there was one in particular which had the greatest effect in retarding the advance of our special art, and, unfortunately, it still to some extent prevails—that is, as soon as an individual connected with our trade imagines that he discerns in himself a capacity for the exposition of what is called the higher sphere of art, he immediately puts aside those things which he affects to look upon as beneath him. I presume we are all familiar with instances of that kind. The aspiration may doubtless exhibit commendable ambition, but the capabilities are not always equal to the occasion, and the end is disaster in place of the anticipated triumph; for it is not an external acquirement which may be learned by rote.

True art is an innate faculty, and it is not often that nature sends into the world men with the genius of John Philip, of Aberdeen, or David Scott, of Edinburgh, whose names will always be associated from the circumstance of their being the greatest colourists which this century has produced in Britain. And again we have Horatio Macculloch, of Glasgow, who inaugurated his artistic career by employing his pencil on the embellishments of those floating palaces for which the Clyde is celebrated. And, although it is a natural and laudable thing for every man to strive for what is high and honourable, I think there is so much that is meritorious to be gained in the field which we cultivate, that it is quite unnecessary to seek for fresh pastures. No doubt there are difficulties to encounter and obstacles to be thrown down, and prejudices to be overcome, but the reward of success would sufficiently repay the effort. And that success would consist in raising decorative art to its proper place, and defining its functions as a pure and legitimate form of "art thought" which would inspire its exponents with an earnest desire to acquire the necessary knowledge of its technicalities, and the skill to employ that knowledge, so as to ensure approbation, and the courage to face undauntedly that mercenary spirit so powerful in these days, which attempts to change it—no matter however genuine the nature of the art may be—into a medium of merely fashionable traffic, enslaved by certain hard-and-fast precepts promulgated by a few who have arrogated to themselves that imaginary privilege. The results of such coercion are invariably fatal, and they pass the way of all things that are dominated by the tyrant fashion. It is very much to be regretted that the tendency of the present day seems to lie in that direction. I can think of nothing better fitted to withstand the wave which threatens to break down, or at least retard the rising art-spirit of the country, than the united action of this and similar associations in denouncing and discouraging all that is of a clap-trap propensity.



TAPESTRY CARPET FROM THE PARIS EXHIBITION, BY SCHULTZ AND JUEL, OF WURZEN.

It is a subject for congratulation to find at the present time that the decorative profession, although holding a position which has not hitherto been fully understood, and notwithstanding the arduous studies essential for the attainment of even a humble standing in its ranks—it is, I repeat, gratifying to find so many earnest workers in our ranks; and all who will take the trouble to observe closely can easily perceive that the day is not far distant when the study of decorative art will be considered a qualification in its possessor which shall command the respect of the community. It already includes amongst its patrons many of the upper classes, a number of whom are enthusiastic in its praise, and are, by their activity in its favour, popularising our beautiful art, and inciting that numerous class who in all matters, taste included, join their voice in the cry that has gone forth, obedient to the injunctions of those who, according to their judgment, are qualified to define what is to be regarded as acceptable.

It is with great satisfaction that we mark the advancement of our art, and I have every confidence that, with the liberal encouragement of the public (when contrasted with the struggles of our brethren forty years ago), which we enjoy, combined with the enlightened system of technical education in vogue, the spread of the principles of art by the machinery of our schools of design, and with the rich and varied examples open to our study in the galleries of South Kensington, and within the walls of our own Industrial Museum, we ought to have every reliance in the future of our art to excel, or at all events to compare favourably in design and beauty of form with, the productions of other lands, although they have enjoyed for centuries the advantages which are only now being brought within our reach. For it cannot be doubted but that the extension of mural art, in addition to the want of patronage, was greatly retarded by our domestic proclivities making us slow to comprehend or accept decorative art in its higher development. This might have been otherwise had our manners and customs been similar to those of France and Germany, where for a long period art has been generously patronised, even in the smallest towns which possess in abundance, theatres, concert-halls, cafés, &c., the most important of the former being gener-

ally supported by the Government. As a rule, these places are decorated with considerable artistic effect; the question of expense is evidently a matter of secondary import, the main object being a desire to make them attractive and agreeable places of entertainment. It is beyond question that they serve, although it may be unconsciously, to educate public taste, by making it familiar with objects of beauty and refinement. And not only is this end realised, but this class of work has also the merit of furnishing employment to a large number of decorators; and for this cause alone the encouragement extended by Government may be looked upon from an art point of view as of great public and national advantage.

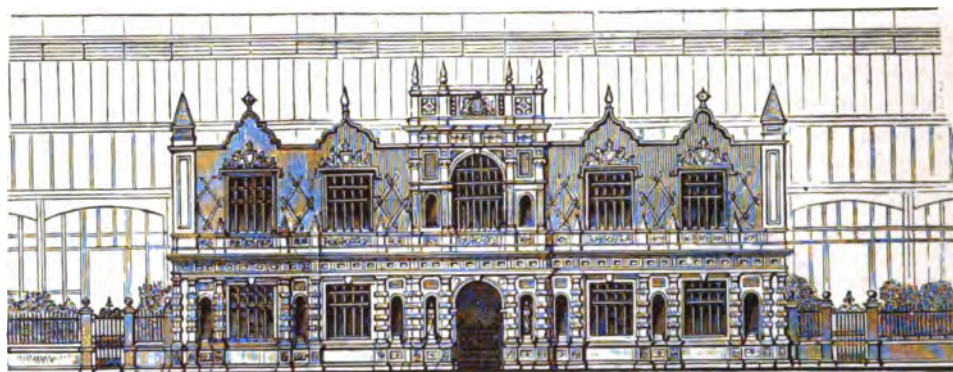
That the employment of mural decoration as a medium for the embellishment of our churches and public buildings, as well as our private mansions, should only be, and is best inculcated by, a gradual but appreciative process, is too apparent a fact to admit of enlarging upon. It should have that facile power of beauty which will enable it to create an atmosphere of art that will imperceptibly blend itself with the national æsthetic tastes, and that so firmly that it will ultimately become an essential mode of the art and expression of the every-day life of the community. But let us not assume, as some people would have us believe, that this happy accomplishment of our wishes is ready to spring into existence all at once, although it is undoubted that the germs of art have been widely sown, and have now become deeply rooted in our midst. They require but the warmth of patronage for their growth and enduring development. And on us, an association of decorators, lies the onus, nay, the imperative duty, to guide, cherish, and protect, in every manner possible, this object of our solicitude, to beware that it sinks not into a mere soulless mass of reproductions devoid of life or meaning. Let steady, earnest study be our motto; and let us always endeavour to engraft on our works the stamp of individuality, which is the prominent feature of true art; for on our success or failure in this depends the decision whether we shall be accepted or rejected for the position we so ardently aspire to occupy as the exponents of the expressiveness of the decorative art of Scotland.



EARRINGS OF RUSSIAN GOLDSMITH'S WORK.



VASE IN GLASS AND BRONZE, DESIGNED BY THE FIRM OF LOBMEYER, OF VIENNA.



NOTES ON THE PARIS EXHIBITION OF 1878.



BY an unaccountable delay on the part of France herself, the Paris Exhibition was not ready by the time arranged. Of all the countries in the world represented at the Champ de Mars, England and Japan, the oldest and the youngest amongst the manufacturing branch of the human family, could claim credit for being ready at the time agreed upon. When we say England, we

perhaps might include the colonies of Great Britain in our list; but, although Canada made judicious haste in the display of her finest wares, it is to be feared that the dust and dirt of the surrounding toilers caused the exhibitors more loss than they ever dreamed of incurring by their seemingly too precipitate unpacking.

The public, who only care to see the results intended to be produced, should wait until the end of June before they think of visiting the show, if they hope to find it in a state of full completion. But to any one who is capable of comprehending the vastness of the undertaking, the very trifling inconveniences of the present time ought to be no bar to their enjoyment. The next few weeks will amply repay every visitor, as the generous and stimulating words of H.R.H. the Prince of Wales have made a profound impression upon all classes, the effect being observable on all hands, not only in the Exhibition building itself, but throughout the capital of France.

It is owing to the fact of the evident unwillingness of foreign—and for that matter of French—exhibitors to soil or tarnish their wares by exposure at present, that most of the writers on the products of the Exhibition have rung the changes upon the charming English structures at the top of the long avenue, down which, in

regular succession, the houses of various nationalities are placed at intervals.

For some days the workmen have withdrawn altogether from the pavilions of the various English exhibitors. The Japanese workmen have beaten the Chinese in the race, and are resting content upon their laurels. Japan presents a great contrast. We have still much to learn from Japanese art of the highest quality. Preconceived ideas of Japanese art had led us to expect anything but this uniform and quiet colouring. The cases are of ebony, and the dominant shade is a deep violet. In these cases they have arranged porcelain and enamels, while their neighbours, the Chinamen, are fitting together the bits of carving that dovetail into one another, with Chinese nicety. The latter wear blue gowns, and the pig-tail descends from their shaven crowns, while the Japanese have only assumed coloured caps, their costume being otherwise European. The drapery decorating their walls is no exception to the general sobriety of hue, being pale buff, with black scrolls and flowers.

Japanese progress and Japanese technical education are shown most minutely, and set one thinking as to the ultimate destiny of a nation which, in so few years, has thrown off the trammels of Eastern *insouciance*, and adopted the arts and sciences of the West. The University of Tokio has sent a complete syllabus of its curriculum of education—including plans of the buildings, lecture-halls, and schools—in questions and answers in English and French of the examinations for degrees in mathematics, physics, history, and other studies; while from the Technical Museum,—a Japanese South Kensington, are shown excellent and clean hydrographic and oleographic maps of Japan, instruments used in the treating of physical science, books, such as the History of England, in 10 vols., Natural History, Chemistry, &c., raised outline maps of Europe, diagrams of edible plants and

especially fungi, mineralogical collections, astronomical instruments, well-executed specimens of ornithology, series of building stones and woods and anatomical models. Few towns in England apparently possess a more complete material for popular education than the University of Tokio, and one of the best features of this part of the Japanese Exhibition is, that lectures are given in these courts twice a week, in English and French, explaining the system, by one of the Japanese commissioners. Japanese material progress is not less interesting

section of a hill-side, through which runs a vein of carbonate of copper, and the manner in which it is mined by galleries. The fibres of Japan are well illustrated, not only in the shapes of ropes and matting, but in other ways. Strong portmanteaus and sets of harness, horse collars, etc., are made of plaited straw, and seem calculated to stand a good deal of rough work, while the display of cotton and the various photos of the factories for cotton weaving and spinning show that India is not to be the only competitor in the East. Our English



BLUE AND WHITE FAIENCE, FROM THE PARIS EXHIBITION.

or startling. From the Royal Printing Establishment at Tokio are specimens of type and stereos, with paper and printing of remarkable clearness. From the Minister of Marine come sets of blocks and spars made at the Marine Hospital, at Tokosko, which might well have been made in England; charts and photos of a Japanese lighthouse, and an admirable model of a steam yacht, while the Mint sends ingots of copper marked with the Royal stamp, and a very clever model, showing a vertical

straw plaiters may take a hint in ornamental work from the Japanese, who show here specimens of parti-coloured inlaid straw-plait cabinets, so exceedingly minute that it almost requires a magnifying glass to distinguish the different bits. Of course, of works of elaborate ornamentation in lacquer work and porcelain there is a grand display, but though very beautiful, they are not so new to European eyes as are those examples of progress just detailed. A marvellously painted screen from Tokio, each

section of the screen having its special subject, deserves mention, from the extreme delicacy of the paintings, nearly all landscapes. One of them representing a railway train coming round a curve, alongside of a canal, would have charmed Mr. Whistler for the perfect manner in which the mist from the water and the steam from the engine were blended.

For years past we have been familiar with Japanese silks, especially made for the European and American markets; but what have been excessively scarce and almost unknown until now are the woven stuffs, brocaded dresses, and embroideries that were worn by the princes and daimios of a period at which the most remarkable manufactures were made, like Sèvres porcelain, only for presentation pieces, or for the use of crowned heads.

Some are so heavy with gold brocade that their weight is nearly sufficient to bear a man down, but in all cases that most exquisite harmony of colour, which is such a relief to us after all the dogmatic art we have suffered under so long, is carried out in the most delightful fashion. These people, who live in abodes that are more like tents than houses, and who, thanks to the glorious climate of their country, are always out of doors, seem to imbibe the influence of the magnificent colouring of nature by which they are always surrounded. Japanese art is true art in the fullest acceptation of the term; that is, a simple rendering of nature without any effort of the brain. When imagination comes into play, then it introduces those terrible though gracefully-curved monsters which astonish us and set us thinking; for their magnificent grotesqueness does not interfere with the general composition of the design, but only enhances its beauty by strong contrast.

The metallic threads used in their brocades are always made of paper, gilt or silvered, for the Japanese are masters in paper manufacture. This has a two-fold utility: while it makes the stuff more rigid, it does away with the hard cracks which occur in pieces in which gold thread of inferior quality is used, for real gold thread is too costly to be used except in church ornamental work, and even then only for pieces used on the altar. In some of the finest embroidery, such as was made for the hangings of temples, the gold work on the dragons is heavy enough to introduce glass eyes and metal claws, which help very much in making the monsters appear terrible. In embroidering on crape—such as is known as *crêpe de chine*—they are without rivals. They use a peculiar method of reserving certain parts by painting them over with a chemical which prevents spots thus prepared from taking the dye. In this way, when the stuff comes out of the dye vat, an important part of the ornamental design is already indicated by white masses and lines. Plaids produced by lines of different colours and thickness intersecting at right angles seem to have been used by them long before they became identified with Scotch fabrics.

A writer in the *Athenæum* thus describes the Japanese building erected in the grounds.

"The gentle souls who find such exquisite delight in Japanese fans and screens will attain Paradisaical joys in the contemplation of the little Japanese erection in the grounds of the Trocadéro. It is surrounded by a garden enclosed by a light bamboo fence. You enter at a wooden gate enriched with carvings of natural foliage and flowers, the whole surmounted by a carving, also in wood, of a cock and hen (the originals, with quaint ducks and other domestic poultry, are in pens near the building). The garden itself, with its broad wooden seats, shaded by large amber-coloured umbrellas, odd little fountains and bamboo huts, looks like a picture from a Japanese fan. But the house itself is the climax, and I shall not be surprised, as the season advances, to see it surrounded by a *chevaux-de-frise* of easels. M. Jillon last year gave you some pretty Japanese interiors; here we have the actuality. How cool and refreshing those clean pale-coloured dolls' chambers will look in the hot days to be expected! Hitherto rain for twenty hours at a stretch, thunder-storms, and cold winds have been the rule. The floors of the rooms are covered with matting; screens stand against the walls; cabinets full of nicknacks are the only furniture, save a few seats; a sheaf of fans is placed in a vase; a pot or two of bright flowers give a dash of pure colour to the picture. In order clearly to see the interior, the exterior wall has been removed; the flooring is raised some two feet. What gives an air of reality to the whole is the attendant, a real Japanese of the choicest ugliness, his rich coffee-coloured complexion set off by a dark blue silk robe; he wears no shoes, but white stockings, with a division for the big toe, like the thumb of a glove. There he sits in the shade of a corridor, motionless. At first you mistake him for a huge bronze or an idol, if the Japanese have not yet discarded such frivolities. Presently you see him slowly take up a pipe, with a bowl the size of a pea; he fills it leisurely, reverses the bowl into a pot of ashes at his feet, takes one puff and then inhales steadily for about twenty seconds, the smoke all the while pouring out of his nostrils; he then gently knocks out the ashes and resumes his meditative attitude. Serenely imperturbable, absolutely unconscious of the presence of the crowd—who believe he is under the influence of opium,—he seems to be immersed in some profound philosophical speculation; but I am inclined to think his thoughts have a more terrestrial direction, and those deep-sunk little beads of eyes are not so unobservant as they seem, for I have observed him at intervals take down a feather brush and quietly dust some small portion of the floor or wall, on which it certainly required microscopic vision to detect an impurity. If that Japanese records his impressions, there is a chance for a publisher of obtaining some new views of European life."

In the two well-printed volumes containing the catalogue of the British section of the Paris Exhibition, recently

issued by the Royal Commission, may be found an interesting series of statistics. It appears that there are altogether 925 provincial exhibitors, and 667 whose addresses are found either in London or its suburbs. These, however, are exclusive of the fine art and live stock exhibitors. Of the provincial exhibitors, 141 are claimed by as many towns. The remainder, 784 in number, are distributed among 116 towns, a total of 257 towns being represented, exclusive of the capital. The first group of classes are those devoted to works of art. They comprise (class 1) oil paintings; (class 2) various paintings and

and models of *crèches* to appliances for adult and professional instruction, and from Kindergarten number-pictures to the most improved specimens of surgical cutlery. The third group of classes, which commence with class 17 and extend to class 29, will be perhaps one of the most popular series of classes in the Exhibition. It is comprehensively entitled "Furniture and Accessories," the latter comprising everything from crystal and stained glass to clocks and watches. There is almost a touch of unconscious humour about the title of the first class in the group, class 17, which contains an exhibition of "all



VASE FROM A. WOLMANN'S NEW GESCHICHTE DER MALEREI, LEIPZIG, 1878.

drawings, such as water-colours and miniatures; (class 3) sculpture and die sinking; (class 4) architectural drawings and models; (class 5) engravings and lithographs. In the first class there are 283 specimens. Water-colours and miniatures, etc., claim 191 exhibits. The three other classes have respectively 46, 171, and 42 examples, the architectural drawings and models, it will be observed, nearly equalling the water-colours. The second group of classes, which are numbered from class 6 to class 16, are devoted to education and instruction, and apparatus and processes of the liberal arts. They range from plans

kinds of furniture, cheap and costly." If this were literally true, this department of the Exhibition would be more than worth seeing. As, however, there are only 32 exhibitors, it is probable that the phrase "all kinds of furniture" both "cheap and costly" must be read with a reservation. That there is considerable variety may be judged from the fact that in the class may be seen the interior decorations of an English mansion *temp.* 17th century, Louis Fifteenth and Sixteenth cabinets, Anglo-Moorish chairs—whatever they may be—and several specimens of artistic decorations.

DEWSBURY TECHNICAL SCHOOLS.

THE question of technical education for the coming generation of the industrial classes of the country, who are looking forward to their becoming artizans by-and-by, has deservedly occupied the attention of the more intelligent section of our manufacturers everywhere, during the last year at least. Occasional paragraphs in newspapers and trade circulars of late have drawn attention to the fact, that continental workmen are becoming as skilled as the ablest of our own handicraftsmen; samples of imported goods were admittedly as good in quality, as they were superior in decorative embellishment, to any for which certain English localities claimed an almost strict monopoly of production in the markets of the world. Of late years it has become the custom when, the season for relaxation from toil comes, that small parties of really intelligent producers set out for continental trips, directing their steps to the new centres of trade that have recently entered into close competition with their own firms. These practical explorers go forth determined, if possible, to fathom the mystery of a cheaper production by people they had been taught to believe were likely to be for ever dependent upon Great Britain for her machine-made products; but the exhibitions in every succeeding year on the continent, and at Philadelphia, and more especially the present Paris Exhibition, have in a great measure opened our eyes to the fact that we no longer can hope to supply foreign markets without competition of any kind, but, on the contrary, it will require all our skill and enterprise to enable us to compete successfully with the states which have only recently turned their attention to great commercial enterprise. Skilled mechanics, properly equipped for the service, have visited on behalf of their employers the workshops of the continent, with the object of studying on the spot the operations of continental fellow-workmen, and these have reported that they have seen no reason to claim their boasted superiority over foreign artificers. They all proclaim that the secret of the success of the foreign producer was easily discoverable. Schools for the careful training of youths of both sexes, to qualify them for their future vocation in life, founded upon a broad basis of intellectual culture, sufficiently liberal for meeting the wants of all, stood in the midst of the dwellings of the operatives of the various towns: these technical schools being supported by the municipality, aided by the government, and under competent instructors, who themselves had been trained at the cost of the state. We also have seen these schools in full operation, and have hastened to draw attention in these pages to the systems pursued in France, Germany, Austria, Switzerland, and even in Italy, feeling satisfied that the subject is of sufficient importance to submit it in detail for the consideration of our readers.

The City of London, after more than twenty years had been wasted, in total disregard of the warnings of competent advisers, last year suddenly woke up to the fact of the necessity that some action should be taken in the matter of technical education; and we have no doubt from a report recently published, to the contents of which we draw attention on another page, that something will come even of the wild schemes of those who, however incompetent they may be, are always ready to offer suggestions, but whose qualification for the office they have accepted may be fairly doubted, from their known want of previous experience or study of the subject under consideration. The resolve of the London corporation was quickly followed by some of the municipal authorities of our larger towns, and already the committee selected by the Dewsbury Chamber of Commerce to report on their need of a technical school have sent in their deliberate opinion that such schools *are* needed, which report, for some cogent reasons no doubt, has been for the present shelved by the corporation, who are naturally unwilling to commit themselves to the responsibility of expending large sums of money with the too evident prospect of failure confronting them from the very outset.

The staple productions of Dewsbury are well known, therefore the weaving school at Leeds might have furnished a fair example of the character of technical instruction needed by them in order to promote the welfare of future carpet weavers, whose early school instruction might be supplemented by a careful initiation into the general principles as well as the particular branch of the trade they will one day be called upon to follow as the occupation of their lives. It may be said that the old-fashioned Mechanics' Institutes which were so generously founded and endowed nearly half a century ago, mainly at the instigation of Lord Brougham and his friends, have failed in their object; but however faulty mechanics' institutes may have been, they undoubtedly served their purpose, whilst from their very nature they were destined in a few years to outgrow the want they were intended to meet, and no sufficiently appropriate alterations in their constitution being provided to meet the conditions of change they were naturally bound to bring about, the institutes themselves naturally became an encumbrance, or ceased at all events to fulfil the duties they were designed to serve at an earlier period. The schools of design founded upon the French system introduced by the Huguenot families settled in England and Ireland, first put in operation in Spitalfields and Dublin, were pressed upon the attention of the manufacturing public by the artist lecturer Haydon, and, but for the want of properly trained teachers, these schools might have produced results that would have justified their retention; but becoming in time defective in principle, these schools of design ultimately merged into the Department of Science and Art classes, which continue with various

success to the present time. But to prove that these classes, as they are called, do not meet the wants of the day, we need only point to the current trade literature, where workmen, addressing themselves to the editors, in seeking for a remedy for existing hindrances in their progress, find a ready outlet for the expression of their wants and wishes. Here is some portion of a letter addressed to a contemporary by a cabinet maker anent the teaching offered by the Department.

"I have often wondered whether in other country towns there has been felt a need of instruction in furniture designing. Supposing a cabinet-maker joins a school of art; first he will have to pass the four subjects in the second grade; then, if he has not a path marked out of

"I believe the masters would often be only too willing to start such a class; but, unfortunately, there seem so few students that care to take up a special subject of that kind, and so the thing falls to the ground, and students are thus left pretty much to their own devices. Many a young man gets tired of attending a school of art, because he feels that he is not getting just what he wants, and economising his time in the best way.

"Speaking for myself, as a young man, our great need seems a thoroughly *systematic* training in all the elements and principles of design; to learn how to apply, when to apply, and what to apply, with as nearly canon laws as art and truth will allow.

"I suppose we can hardly expect an art-master to be a



RUSSIAN POTTERY.

his own, most likely he will be set to shading from the cast; and at that work he might employ a lifetime, if he felt inclined; not that the study of light and shade should be undervalued, but is it *the* thing that a cabinet-maker or designer needs at first? Should he not first learn thoroughly the *principles* of design? Should there not be some *class* specially instructed for such a purpose; else will not the student find he is wasting a deal of time? It seems to me that there is so much more interest in a class where there is likely to be a little competition, and where more attention is given to the subject, than if a student is working alone with, perhaps, two or three different masters, offering their own suggestions on his work, and he hardly knowing which is most correct, or how to proceed.

special and particular authority on furniture designs; but I think the 'Department' might give us the opportunity of seeing and studying some of the best designs for furniture, and show us the readiest way to make a practical application of our studies. Until there is a regular course marked out for those who intend to take up with furniture designing, there will always be an uncertainty as to whether students are working on the right track; and they will feel discouraged at the little progress they can make."

We know of no more likely method of meeting the growing necessity of educating the workman than by a systematic teaching to qualify him to encounter the growing difficulties of remunerative production, which education will raise him above the danger of being influenced for evil

by ignorant and contaminating companionship, sure to plunge him into excess out of which there is no escape. Is there amongst us any one at all acquainted with the workmen of the cotton districts who will affirm that the present strike is not the result of the crafty instigation of designing knaves practising upon the credulity of ignorant and untaught workmen, who, by the force of circumstances alone, are at any moment ready to become the willing tools of the paid emissary of foreign producers, or the plotter against the peace of the country, who is careful to keep at a distance from the scene of his operations? There is no prospect of a cessation of such occurrences as have recently thrown discredit upon the operatives of Blackburn and Clitheroe, until the corporations of the various towns of England make separate or united provision for the enlightened education of the operatives employed in their municipalities—education of a purely technical character founded of course upon a proper basis.

ART, LEARNING AND LITERATURE IN AUSTRALIA.

(Continued from page 138.)

IN addition to the University of Melbourne, which we described in our last number, we have similar institutions in Sydney and in Adelaide. The course of study and objects are nearly alike in all.

"Facies non omnibus una
Nec diversa tamen qualis deest esse sororum."

Local circumstances make the only distinctions, and promote a friendly rivalry.

In 1857 the Sydney University was incorporated, and soon afterwards received a royal charter which recognised its degrees as equivalent to those of Cambridge and of Oxford.

The London recognises its certificates as to its students having received proper instruction with the object of admission to degrees in the Metropolitan University. It is endowed with 5000*l.* a year from the public revenue, "for the advancement of religion and morality, and for the promotion of useful knowledge."

The education which it affords is strictly secular; there are no religious tests, it is "open to all orders and denominations without any distinction whatever." The religious element is well provided for by means of colleges connected with the several bodies. Indeed, it is expressly enacted that "no honour or degree shall be conferred by the University on any student who shall not produce from his college a certificate that he is of sufficient religious attainment;" subject to this, it grants degrees in Law, in Medicine and in Art.

The undergraduate course lasts for three years, during which valuable courses of lectures can be attended. These treat of the Greek and Latin languages, Logic, History, Mental Philosophy, Mathematics and Natural Philosophy, Physics, Experimental Physics, Chemistry, Palæontology, Geology and Mineralogy. They are open to the public upon payment of a small fee.

At Sydney and in other convenient localities, examinations are held annually, similar to those which are termed "middle class" in England. The Civil Service examinations are also conducted by the University.

The privilege of returning a member to the Legislature was granted as soon as there were one hundred Masters of Arts admitted. A Chancellor, Vice-Chancellor and Senate, composed of sixteen elected members, with whom the professors are associated, govern the University.

Private munificence has added largely to the prizes which had been established by the governing body. Five scholarships for general proficiency had been founded by them. Sir Daniel Cooper, Bart., has given 1000*l.* to endow a classical scholarship. Mr. Thomas Barker gave the same amount for one in mathematics. Sir Edward Deas Thompson devoted an equal sum for the support of another in physical science. This formed a portion of a testimonial which had been raised for him. All these three scholarships have been named after the liberal donors.

The Levy scholarship of 500*l.*, and 1000*l.* bequeathed by the late William Lithgow, are given for general proficiency. Mr. S. K. Salting founded an exhibition for distinction in the Faculty of Arts.

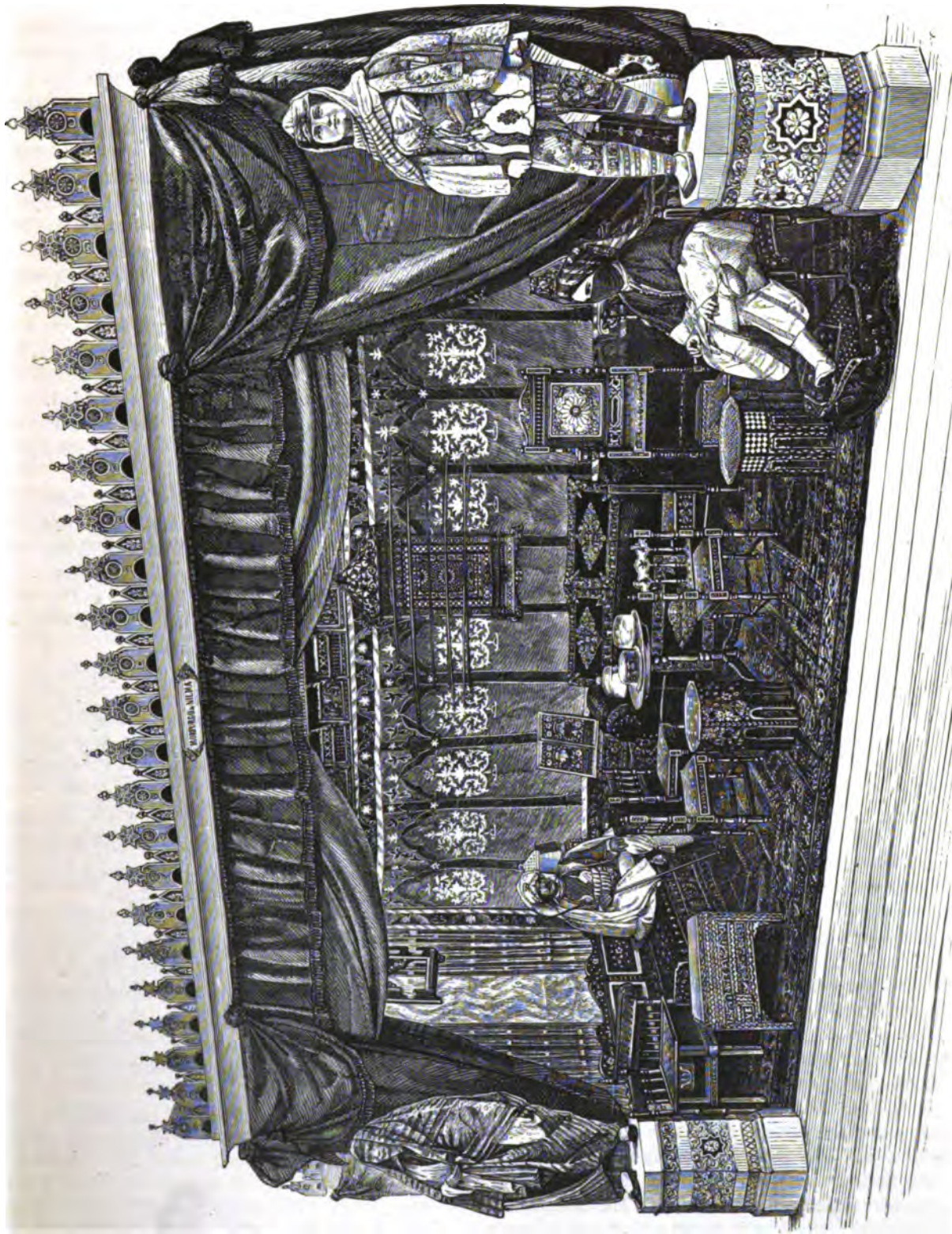
A "travelling fellowship" has been provided for by the late Mr. Wentworth, an old and distinguished colonist, who placed 545*l.* to accumulate until it amounted to a sufficient sum. Mr. J. D. Mort has followed his example.

The Gilchrist and Allen scholarships, the first of 100*l.* a year, the latter of 500*l.*, must be mentioned. We do not know for what particular branches of knowledge these are appropriated.

These are the chief prizes, and surely they are encouraging. There are in addition the Belmore, Nicholson and Wentworth medals, and some smaller amounts from Sir C. Nicholson, Messrs. Hamilton and Merewether and others, for distinction in Latin and English poetry and essays.

Although the fees are very moderate, the number of members is as yet limited; they do not much exceed three hundred. The buildings are admitted to be the best adapted for their end of any in Australia. The Hall is particularly the object of admiration, as it deserves to be, on account of its grand stained glass windows, the gifts of Sir Charles Nicholson, Bart., Sir Daniel Cooper, and Mr. Challis. The side windows, eleven in number, given by several old colonists, give an Old World look to it, which is unusual in such a new country. If riches can easily be acquired, it is pleasing to see them well expended.

All the Australian colonies have adopted nearly a



CHAMBER OF A HOUSE IN TUNIS.

secular system of primary education. The number of pupils receiving instruction in New South Wales in 1876 was 131,620. A satisfactory return, as the population was 630,000. The educational vote for 1878 is 320,000*l.*, just one-sixth of that proposed for the United Kingdom.

The most noticeable literary and artistic establishments are the Library with its 30,000 volumes and 73,000 readers. The Museum is a favourite lounge. There is also an Observatory, but we have never heard of any addition being made to our astronomical knowledge by its means. In mentioning lounges, we are reminded of the lovely Botanic Gardens. We have seen many in all parts of the world, but never have been in any that can compare with the combination of beauty, natural and artificial, which is to be met with here. Situated on a small promontory projecting into, and commanding varied views of the romantic harbour, it is hard to imagine much less to describe its attractions. It is only a wonder that it does not produce a nation of painters. In the country districts there are eighty public libraries, schools of art, mechanics' institutes, etc. Forty of these are called "schools of art;" we conclude that here imagination must have taken the place of reality. Great attainments in the rough bush can scarcely be expected. In Sydney itself there is an Academy of Arts and a drawing class. 2000*l.* is annually expended on it. Photography has been carried to great perfection; the singular clearness of the air and brilliancy of light being much in favour of that branch of art.

Before we leave the continent of Australia, we must say a few words on the youngest of our universities, that of Adelaide. As it was founded only three years ago, its progress is but small. An endowment of 50,000 acres of land secures its future. Already three scholarships have been established by the Council of Education of 50*l.* per annum, and Mr. Angas has founded another for engineers of 200*l.* a year. The annual report for 1876 says: "It is a gratifying sign of the times that so large a number as thirty-three ladies have as non-matriculated students attended some of the university classes during the first year of its operation; for it is certain that high mental culture on their part must react on the other sex, and give a powerful impetus to self education and the acquirement of literary as well as social knowledge. It is hoped that ladies will become matriculated students, and compete for degrees and scholarships."

The governing body is a Senate, presided over by a Chancellor, the present being the bishop of the diocese, now on a visit in this country. The professors are efficient, and their course of instruction is extensive.

We have not been able to ascertain particulars here with the same accuracy as elsewhere, nor do we find the same encouragement given to art. The number of pupils receiving instruction in public schools was 26,000.

A voyage in a good steamer of four days brings us to New Zealand, our youngest colony in the southern seas. Academical education has not as yet produced the same

results here as in the older settlements, but its future is even more brilliant, if it can be secured by munificent, if not prodigal liberality. The English reader stands aghast when he hears of above six hundred thousand acres being allotted in one island for the endowment of education.

The University of New Zealand is as yet undeveloped; it has been granted a charter, and its organisation is completed. As yet it is only an examining, not a teaching body, and has to avail itself of the services of the professors in the provincial colleges for testing the knowledge of the candidates for degrees. These colleges are affiliated to the University. The first we shall mention is the Canterbury College, where the course includes Classics, Mathematics, Modern Languages, History, English Literature, Natural Philosophy, Political Economy and Jurisprudence. Three hundred and fifty thousand acres, which cannot be sold for less than 2*l.* an acre, have been granted as a permanent endowment for this college. There is an additional 50,000 acres for other educational purposes. In this province there is a Museum and Public Library; lectures are given, and the inhabitants are sanguine that their library may rival that of Melbourne in utility if not in grandeur.

We next shall consider Dunedin, where there is a college endowed with 200,000 acres. The buildings, which are handsome and commodious, have already cost above 30,000*l.* As yet there are only eighty students to instruct, while there are five professors, and a sixth appointed at a salary of 600*l.* by the Synod of Otago to lecture in moral and mental philosophy.

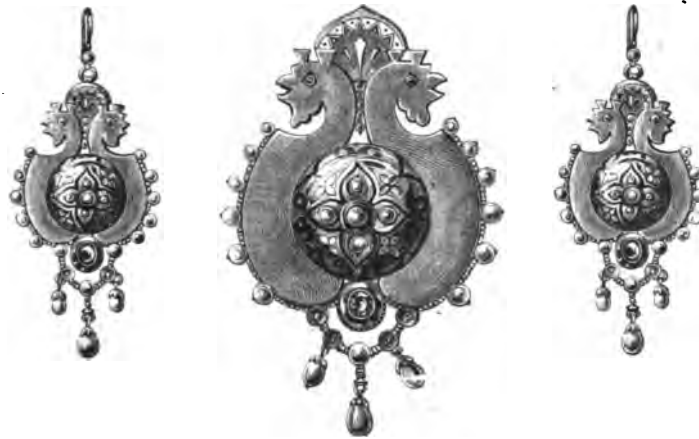
There is a School of Art with one thousand pupils, who are taught free-hand drawing, painting from copies and nature, and from the human figure, designing, practical geometry, perspective, mechanical and architectural drawing. The proficiency is said to be beyond all praise.

Mr. Anthony Trollope was much struck with the mental culture which he noticed. In all these country towns there are libraries. Carlyle, Macaulay and Dickens are certainly better known in New Zealand than at home.

The report upon education says: "The public library books were not only to be seen in the more comfortable and accessible dwellings in the settled districts, but it was no uncommon thing to find recently published English books of a high class, bearing the board's stamp upon them, in the shepherd's solitary abode amongst the hills and in the digger's hut accessible only by bridle tracks."

A taste thus engendered demands and doubtless soon will obtain the works of art which support and produce a race of artists.





REVIEWS.

William M. Hunt's Talks about Art, with a letter from J. E. Millais, R.A. London, Macmillan and Co., 1878.

A DISTINGUISHED English artist, during a visit to America, made the acquaintance of the trans-Atlantic Art teacher whose incisive observations upon the works of the students practising in his atelier in Boston, struck him as being distinctly original, racy, and American. Having obtained the permission of his talented friend, he has published a small collection of these remarks accumulated by Miss Knowlton.

It is to be regretted that more of the same class of criticisms, and pithy sayings, in which artists are wont to indulge at times, have not been preserved for us by such Boswell-like note takers as Miss Knowlton, the lady superintendent of the class who has jotted down, "on such scraps of drawing-paper or backs of canvases as happened to be near at hand," the remarks and suggestions of her respected instructor.

Who, that has had the privilege of being associated with that most revered of Art teachers, the late Mr. Leigh, of Newman Street, or that most genial of painters, George Sharp, of Dublin, will not regret on turning over these pages of W. Hunt's 'Talks about Art' that we have no similar record of the expressions and opinions of the masters we have named? but in order to give an idea of the value of this very instructive work, which every young artist will treasure as the expression of his own feelings on many occasions, we will quote a few, to illustrate the character of the whole. The criticism of Mr. Millais, to whom a copy of the work had been sent, in a letter published with the volume, is so just, we have no hesitation in quoting it also as an illustration of this famous English artist's habit of thought freely expressed.

"I have read Hunt's notes *attentively* and have been

greatly interested in his remarks. He says vigorously a good many things we say amongst ourselves, though he appears at times to contradict himself, inasmuch as he tells a man to express himself in his own way, and at the same time it cannot be done in that way. On the whole, his advice is undeniably sound and useful to the student, if he, the student, can possibly anticipate what comes of experience.

"The fact is, what constitutes the present Art is indescribable, the drawing not faultless, but possessing some essence beyond what is sufficient.

"The French School, which Hunt speaks of, appears to me at this moment to aim chiefly at perfection. Meissonier is more complete than any old master ever was. I continually see French work of which one can only say, I don't see how it can be better, and yet it is not necessarily Fine Art of the highest order; not greater than Hogarth, who was innocent of all *finesse* of execution. The question is, how hard a man hits, not how beautifully he uses the gloves; and a useful writer on Art should be able to separate the various qualities in our work without prejudice, which is one of the greatest curses we have to fight. . . Mr. Hunt's principles are in the main my own."

The main principle the speaker evidently seeks to inculcate is the practice of a bold and large style, to draw what you see, to try to be original, and, above all things, to avoid "niggling." Indeed, Mr. Hunt's talks may be termed a crusade against "niggling,"—that bane of modern painters who fritter away their skill in elaborating the details of their work until the main object is completely lost sight of.

"Carefully map out your work first with *persistent slow carelessness*; *work firmly, wilfully*. Dare to make a mistake if it be a bold one. Think of the Egyptian image, with an arm longer than the whole figure, pointing

with decision and daring, and so strong that the beholder bows before it. We dare make the letter D, but niggle over a drawing till it is so weak that it has nothing of nature in it—only ourselves.”

“There is a great deal of talk about conscientious work in painting. As well talk to the bird about conscientiousness in his singing! Conscientiousness and justice are stations which have been reached and passed before any fine work appears!”

“You sit too near your work; you see only the *handiwork*. If you were to look at it from a distance, you would see the *quality*.”

“Our idea of ‘finish’ is that everything should be *smooth*. A bird is finished when he can fly!”

“You can’t add or subtract a ‘truth.’ A truth is complete, and to be let alone. Adding a truth is like polishing a soap bubble. Trying to add truths has nearly finished English Art! When English artists paint their *im-*

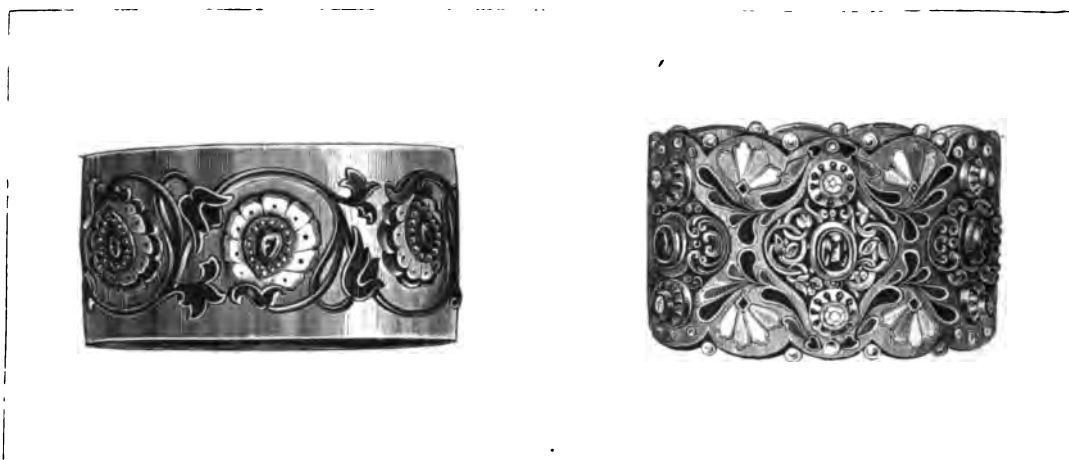
“Convince yourself of the whole form of an object. Swing the whole form upon your paper or canvas. Then amuse yourself by dividing and subdividing it by details. Never try to hang a head upon a nose.”

“Our whole life is given to looking at little things; we refuse to see broadly to grasp a whole.”

“Drawing should be considered not an accomplishment but a necessity. Any one who can make the letter D can learn to draw. Learning to draw is learning the grammar; but whether you have *anything to say*, that is another thing.”

“Think of the violin student in the Paris conservatoire, who was more than a year trying to bend his thumb, as he had *not* been taught to do in the provinces.

“This doing things to suit people! They’ll hate you, and you won’t suit them. Most of us live for the critic, and he *lives on us*. He doesn’t sacrifice himself. He gets so much a line for writing a criticism. If the birds



BRACELETS OF RUSSIAN GOLDSMITH'S WORK.

pressions, their Art has weight; when they accumulate *facts*, their pictures are like dictionaries. ‘Ruskin’s receipts make a book, but never made a painter and can never make a picture.’ Scientific scrutiny may take things to pieces, but it can’t put them together again, it dissolves diamonds and obtains—gas! Criticism kills art instead of helping.”

“Ask yourself positively, what is the realisation of the thing! If the line is straight, make it so as nearly as possible at once. If it is crooked, make it positively crooked. Lay down palette and brushes and ask, as if your life depended upon it, what is the colour? Decide, as nearly as you can, what will make it, and do it at once. Don’t be ‘wabbling’ all the morning and approximate in the afternoon!”

“You must necessarily spoil a good deal of paper. Therefore, I beg of you, spoil it cheerfully. You will learn freedom of movement in so doing.”

“Strike frankly and strong from your convictions, and your faults will be much more easily corrected; for they will be the more evident.”

should read the newspapers, they would all take to changing their notes; the parrots would exchange with the nightingales, and what a farce it would be!

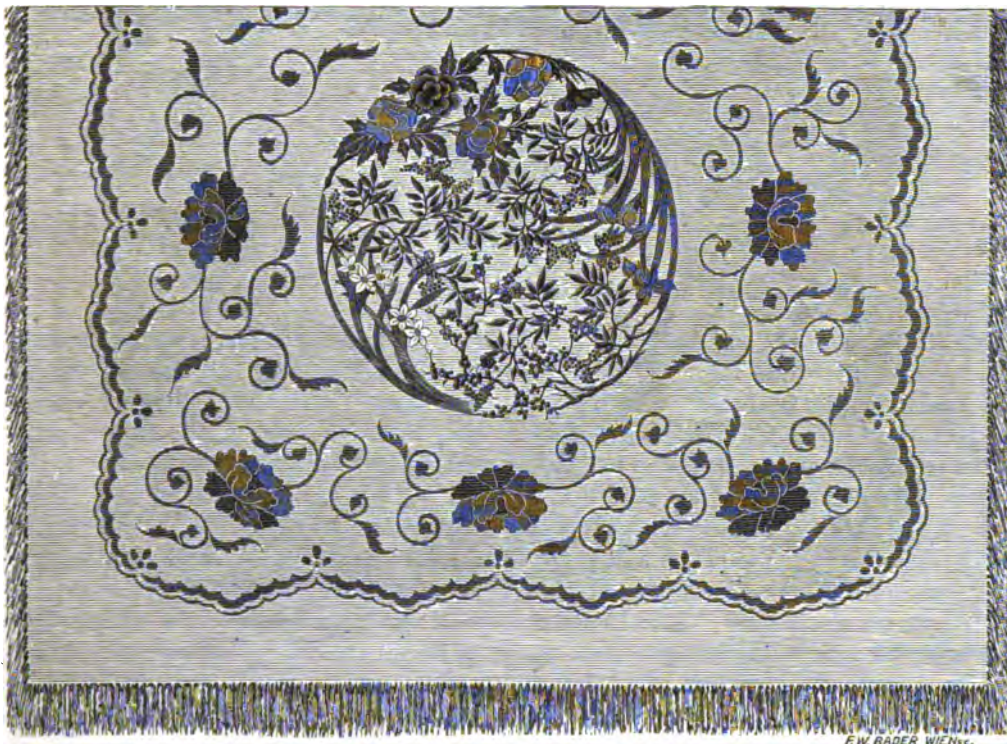
“Children should learn to draw as they learn to write, and such a mystery should not be made of it. They should be encouraged, not flattered. As it is, every child shows some disposition to draw early, marking on doors, tables, books, ‘whole sheets of paper, which must not be wasted,’ while the parents, who would save that paper, write the most vapid nonsense. With no help and encouragement, the child gradually loses its desire to draw, gets interested in other things, until the wish to draw again breaks out, and then double effort is required to get the facility which might have been gained insensibly.

“You want to learn how to *paint*! Well, we won’t mind now about the colour! To arrive at colour, you must first learn how to *paint*, and it isn’t done by patching. Learn a simple manner of proceeding, attack things in a broad, simple way, and, when done, you will find faults of colour which you can correct in *another picture*. I must combat your eye for colour; which is first rate,

and teach you the simple, broad manner of painting. Then your natural feeling for colour will tell later. Take, for instance, burnt sienna, white and cobalt (brown, white, and red will do it). Lay the colour on frankly and fully, join the edges carefully, don't work into the centre of things. Make flat of the right value and put your care into the edges. Unite them carefully. Give up the idea of getting colour by niggling; produce it in a broad simple way, and remember that you can't copy that exactly, and the sooner you give up the idea the better.

"Try to get flat, even surfaces. People who paint

work! You are all careful and conscientious enough! There is conscientiousness enough in this room to run fourteen water-wheels. If you were working for a man who expected you to paint four omnibuses to-day, six to-morrow, and eight the day after to-morrow, you'd get to work in earnest. You can't finish a thing farther than you can go; the moment you put your hand upon the canvas, that part of it is finished. You never learned so much as when you painted that figure in two colours, and when you under-painted that head for me, and knew that you had only one day in which to cover the entire canvas.'



JAPANESE EMBROIDERED CLOTH OF ANCIENT PATTERN AND WORKMANSHIP.

for a living, house-painters, etc., always get flat surfaces. They don't stop to niggle.

"Painting is looked at as an accomplishment, but it is the only *universal* language! All nature is creation's picture book. Painting only can describe everything which can be seen, and suggest every emotion which can be felt! Art reaches back into the babyhood of time, and is man's only lasting monument!

"Sir Joshua Reynolds says: 'I am sure that there is only one way of painting—to begin the thing by putting it in with white and blue!' If you would only handle the brush as you handle the charcoal—go recklessly to

"There is a great deal of talk about 'conscientious work' in painting; as well talk to the bird about conscientiousness in his singing. Conscientiousness and justice are stations which have been reached and passed before any fine work appears. They are almost material limits compared with the overflow that Art is! they serve the purpose of the trader, but not of the artist who cannot stop to do conscientious work. He *begins* far ahead of that! If painters stopped at conscientiousness, they would cheat the world out of half they have done. Imagine Paganini playing conscientiously!

"Keep up the practice of the eye and the hands!"



RUSSIAN EARTHENWARE.

EXHIBITIONS.

THE Worshipful Company of Fanmakers' Competitive Exhibition, under the patronage of H.R.H. the Princess Louise, will be held this month in a hall of one of the City Livery Companies. The exhibition will comprise the following classes:—1. Ancient European fans. 2. Modern European fans. 3. Exotic fans. 4. Modern fans of British manufacture. 5. Fans not comprised in the above classes. These classes will be subdivided into sections, according to the leaves and sticks of the fans (if deemed necessary). Manufacturers, amateurs, collectors, and dealers are invited to contribute to the exhibition designs or specimens of fan-leaves, painted or embroidered on silk, satin, cloth, or any other material, and of fan-leaves made of lace of various sorts, such fan-leaves to be exhibited, either mounted or unmounted. All exhibitors under the fourth class, and dealers exhibiting under any class, will be allowed to affix prices to their fans, which prices will be duly scheduled in the catalogue, on condition that the fans are not removed until the exhibition is over. The fourth class will form the object of special attention, the chief aim of the company being to revive the manufacture of fans in England. In awarding prizes, regard will be had to rarity, variety, excellence of workmanship, and merit, both in taste and originality of design. Cost of production of the specimens sent in will also be considered. The prizes will consist of gold, silver, and bronze medals, struck with a special die, bearing the arms of the Fanmakers' Company, and a suitable inscription;

the freedom of the company; and of an engraved diploma, signed by the Master and Wardens of the Company. Mr. James Curtis, the Hon. Sec., of 12, Old Jewry-chambers, will supply further particulars, upon application.

AS IN FORMER YEARS, the Master, Wardens, and Court of Assistants of the Turners' Company again propose to give a silver medal, the freedom of the company, and, subject to the consent of the Court of Aldermen, the freedom of the City of London, for the best specimen of hand-turning in wood, and of diamond-cutting and polishing. A bronze medal will be given as a second prize, and certificates of merit, as well as money prizes, will be awarded in the discretion of the judges. A competition is also announced in pottery. The freedom of the company, a sum of money, and the freedom of the City of London will be given for the best piece of pottery thrown on the wheel in one piece, without joints, and not afterwards shaved or turned in any way or glazed. A silver medal will be given for the best piece of pottery thrown and turned, and a medal for the best piece of turned or shaved pottery ornamented by the runner or other hand tool. In the diamond-cutting and polishing competition the Baroness Burdett Coutts has placed at the disposal of the court 20*l.*, to be distributed among the competitors. A sum of 10*l.* will also be awarded for the best specimen of amateur work in ornamental turning in either ivory or hard wood.



NOTES.

MESSRS. Lewis and Allenby of Regent Street have just opened a special Exhibition of Oriental Art work, consisting for the most part of the most exquisite works in embroidery and "objects of art" from China, Japan, India and Asiatic Turkey, the careful study of which will afford the lovers of really choice art workmanship a rare opportunity of gratifying their taste. The superb arrangement of this brave show of Industrial Art reflects the highest credit upon the enlightened projectors of the brilliant enterprise.

THE growing taste in artistic pottery is not confined to English buyers. The same feeling of admiration for elegant forms in such perishable materials as glass or earthenware manifests itself in France and Germany, where novelties, and if possible very successful imitations of 15th or 16th century jars, beakers and goblets are eagerly bought by artists and the general public, infected more or less by artistic-looking vessels for use or mere ornament. Quite recently a new form of pottery has sprung into existence at St. Clément in Lorraine, which bids fair to become very popular with the admirers of the old Flanders ware. This coarse red ware is glazed with a lustrous blue-coloured enamel very effective as decorative adjuncts to the almost universally adopted smooth and unpolished walnut-wood fittings of modern chambers. There are grotesque articles for those who care for such things, but the most likely to succeed in England are reproductions of articles of general use in the 17th century.

THE Kidderminster town-council have resolved on establishing a permanent school of art in their locality, formed on the same basis as that now generally adopted. In the first instance they propose to limit their operations to the outlay of some three thousand pounds.

THE success of Mr. Burrell's enterprise connected with the introduction of Indian tea grown in the tea gardens of Northern and Western India is most gratifying to all concerned. One pleasing feature of the Oriental division of the British section at the Champ de Mars this year, is the magnificent display of specimens of various plants grown in India for commercial purposes, where of course tea takes a foremost place, although coffee and chinchona are well represented.

During the visits of their Royal Highnesses the Prince and Princess of Wales and the Marquis and Marchioness of Lorne, Mr. Burrell has had frequent opportunities of submitting his daintily prepared beverage to his Royal guests, Messrs. Collinson and Lock having placed the lower rooms of the stately structure erected by Messrs. Cubitt at the disposal of the Indian Tea Agency for the purpose of receptions. "Five o'clock tea" is becoming very popular in Paris, and as the city could never boast of a genuine tea emporium, Mr. Burrell was ready to supply the too obvious deficiency by opening a first-rate tea warehouse in the Rue Scribe; this undertaking has been commenced under unusually bright auspices, for his Indian friends have placed at the disposal of their enterprising collaborateur a superb collection of ancient Indian armour inlaid with gold, and encrusted with precious stones, which in themselves form an attraction people of taste cannot resist. The Rue Scribe will eventually become the centre of supply for the Paris tea-dealers, who already see that it is to their advantage to buy from this wholesale house an article which is guaranteed pure and unadulterated from the various tea growers who have personally superintended their consignments. This is more than can be said of the ordinary imported China tea, which is prepared without much regard to cleanliness or deference to the scruples of unsuspecting European tea drinkers.

WOOD-CARVING IN SCHLESWIG is being carried on by Herr Christopher Magnussen, who a few years since established a school for wood-carving there. The name of Magnussen as a distinguished painter must have become familiar to many, but hereafter it will be better known as that of the reviver of the art which we have just mentioned. We say reviver advisedly, inasmuch as that Schleswig and the adjoining states supplied carving for the decoration of English homes several centuries ago; and shiploads of useful and ornamental work were yearly transmitted across the German Ocean. The school is now in a most promising condition, having already made great strides in technical and artistic knowledge, under the experienced guidance of its master. Besides modelling natural forms, such as leaves and tendrils, the more advanced amongst the students have attempted to represent the human form. This disinterested undertaking is so praiseworthy, from an artistic and material point of view, that it deserves the strongest support and widest publication. The town of Schleswig has given its hearty support and countenance, and we warmly wish the undertaking prosperity.

TO DISTINGUISH BETWEEN BLUE AND GREEN AT NIGHT.—A useful and practical hint with reference to the confusion which constantly arises in distinguishing between the colours of blue and green by night, may be of considerable value to many whose calling obliges them to work with these colours. This difficulty arises from the fact that the yellow light emitted by the candle or lamp amalgamates with the blue of the material, producing a green effect. The use of a magnesium light obviates any chance of such a risk, on account of the intense whiteness of its light, which equals daylight in purity. This, however, may be beyond the reach of many, and for them a simpler, cheaper, and almost equally efficacious substitute may be recommended in the shape of Swedish matches, which, owing to their chemical preparation, emit a pure white flame when first ignited, affording time during the few seconds it lasts to distinguish between the conflicting colours. Simple as this suggestion is, we predict with confidence that it will be of untold value both to amateur and artisan.

MORAVIAN INDUSTRIAL MUSEUM.—A curious and not uninteresting exhibition has been lately held in Germany. A collection of ornamental boxes or bonbonnières was shown. In the first place we were struck with the number and variety of materials which might be applied to this purpose. Some were of wood, horn, ivory, meerschaum, mother-o'-pearl, stone, petrified wood, agate, cornelian, topaz, iron, lead, bronze, silver, gold; others of basket work; some with embroidery, leather, lacquer enamel, mosaic, and painted materials. This exhibition showed many new ideas for the treatment and decoration of the foregoing materials, whilst in the actual form of the caskets, several new and original forms were introduced. Contributions were sent by the Emperor of China, the Mikado of Japan, the Sultan, the Emperor Francis Joseph, etc. One of the most admired boxes is of Hungarian origin, a composition of opal and porphyry. Some French enamels and carved ivory, together with some exquisite arrangements of feathers, were remarkable.

MESSRS. GILLOW have now on view some specimens of Windsor tapestry, executed for Her Majesty in the new school lately established. The designs are principally by Messrs. Hayes, Ward, and Henri; they are strictly French in style, and the numerous tones and shades which are necessary have been most successfully secured. Thus great delicacy of effect has been attained, and the even texture of the work recalls similar productions from Gobelins.

AT this moment the grass-plots of our suburban residences, the green entrances of our more extensive proprietors, the cricket-grounds and croquet-lawns everywhere give evidence of the rapid development of a growing industry which has its centre at Ipswich, where Messrs. Ransome, Sims, and Head, of the Orwell works, give employment to workpeople constantly employed in turning out thousands of lawn mowers of the most novel construction, at prices which bring them within the reach of everyone who can afford to have a plot of grass worth keeping tidy, or keep a horse and man employed at the work of grass-cutting by this automatic machine, which does its work most effectively.

MESSRS. HOWELL AND JAMES of Regent Street can now boast of the royal patronage of the Prince and Princess of Wales, for the encouragement of the special branch of their business devoted to painting on china.

The pictures we engraved last month by Mrs. Sparkes, wife of the head master of the Schools of Art at Kensington, have been purchased by her Royal Highness.

LIST OF ILLUSTRATIONS.

	PAGE
Portrait of Her Majesty the Queen in tapestry, wrought at the Royal School of Tapestry at Windsor, which under the patronage of Her Majesty promises to restore the reputation which this country once possessed for tapestry work, but which died out at the beginning of the last century, when the Mortlake Tapestry Works were closed in 1703. The chef-d'œuvre exhibited at the Pavilion is this portrait of Her Majesty, which occupies the panel over the carved chimney of the dining-room. On the right-hand side of the latter is an archway draped with portières furnished by the Royal School of Art Needlework, and leading to an octagonal chamber arranged as a boudoir for the Princess of Wales. The Pavilion is placed at the disposal of His Royal Highness the Prince of Wales, and furnished throughout by Messrs. Gillow of Oxford Street, under whose auspices this fine specimen of modern tapestry has been designed and executed from a study made from the original painting in oils at Windsor Castle. We are indebted to Messrs. Gillow for the opportunity now afforded us of presenting an engraving of this fine work to our readers	Frontispiece
Panel representing a fine specimen of Russian goldsmith's work in the form of a bracelet. The pattern is founded upon an ancient Scandinavian design, which is even more closely imitated in the brooch, which is figured on the same page, and the pair of earrings on page 158. This excellent work, highly esteemed in Russia and on the continent, is from the hand of O. Krumbügel, of Moscow	153
Three vases of faience, which we illustrate, are from the designs of Mr. Lewis Day, and are painted by Mr. Fisher. The two side ones, representing "Morning" and "Night," from their delicate ornamentation and the graceful pose of the figures, are among the most effective we have seen, and ought certainly to command a ready sale at the World's Fair. We congratulate Messrs. Howell and James on their attempt to place the efforts of ceramic artists in a light favourable to Continental criticism	155
The fine specimen of tapestry carpeting we figure is from the house of Schultz and Juel, of Wurzen, whose magnificent work has, during some years, received the highest favour from the leading furnishing houses here and on the Continent	157
Russian goldsmith's work, already noticed above	158
The vase in finely cut glass, and mounted with gilt bronze decorations, is a superb example of modern Industrial Art. The design has a classic motif, which has hardly been departed from in the general execution	159
The panel is the Prince of Wales's Pavilion, designed by Mr. Gilbert Redgrave, in the Elizabethan style	160
A superb design in blue and white faience of 18th century work from the Roerstrand factories, whose famous works are justly held in the highest esteem by manufacturers and collectors	161
Greek store-vase (<i>σραμνος</i>), from an engraving of the original in the Munich collection, in Woltmann's new <i>Geschichte der Malerei</i> , published recently at Leipzig by E. A. Seemann	163
Specimen of unglazed Russian pottery resembling old black Wedgwood in texture and material.	165
View of the interior of a house at Tunis on the Barbary coast. The various articles arranged in the apartment are of either Byzantine type or are Moorish in design and manufacture	167
Russian brooch and earrings, of elegant form	169
Russian bracelets, of two patterns	170
Specimen of ancient embroidery, by a Japanese artist	171
Specimens of Russian earthenware, from the factories represented at the Paris Exhibition	172
Gold ornaments from Moscow	173

TABLE OF CONTENTS.

INDUSTRIAL ART

FOR
JULY, 1878.

	PAGE
THE CITY GUILDS AND TECHNICAL EDUCATION	1
LEONARDO DA VINCI AS AN ENGINEER	2
AN IMPERIAL MUSEUM FOR INDIA AND THE COLONIES	6
GLASS PAINTING IN THE MIDDLE AGES	7
NOTES ON THE PARIS EXHIBITION OF 1878	9
TECHNICAL EDUCATION ON THE CONTINENT	14
BOHEMIAN TECHNICAL SCHOOLS	16
STAINED GLASS	16
HOWELL AND JAMES AT THE PARIS EXHIBITION	17
LOCAL ART CLUBS	18
JAPANESE ART	19
"FOREIGN COMPETITION"	20
THE LOAN EXHIBITION OF CINCINNATI, 1878	22
THE ANNUAL REPORT OF THE DEPUTY MASTER OF THE MINT	26
NOTES	29
LIST OF ILLUSTRATIONS	30

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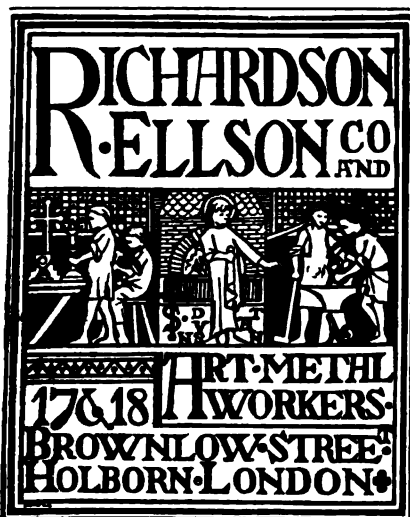
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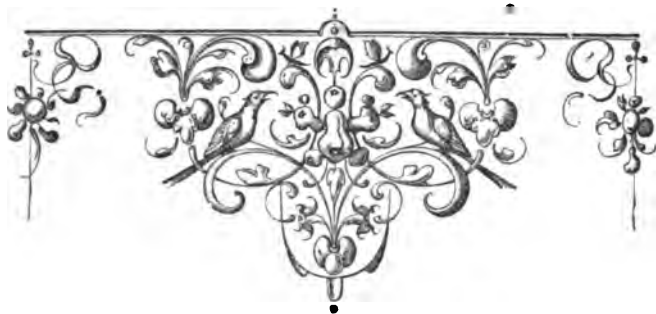
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INDUSTRIAL ART.

*"Nought shall make us rue,
If England to itself do rest but true."*

PHILIP FAULCONBRIDGE in "King John."

THE CITY GUILDS AND TECHNICAL EDUCATION.

THREATENED men live long. As with individuals, so it is with corporate bodies. The reform of the City Guilds has long been agitated, but still they flourish in spite even of parliamentary motions for inquiry into their resources and management. In one sense Mr. A. Smith is right in his contention that their trade usefulness has nearly disappeared, but he was scarcely justified in expatiating upon their decay, when they continue to divide amongst them no less than a million sterling annually. Notwithstanding all that we hear of the fabulous sums they spend in luxurious banqueting, they do not seem to confine their collective occupation entirely to feasting. Awakening to the importance of technical education, they contemplate the establishment of a National Industrial University on the Thames Embankment, between the Temple and Blackfriars, consisting of a large amphitheatre or lecture room, a Council Hall with library and a Museum for trade examples and models. Captain P. B. Bicknell, Master of the Mercers' Company, was not far wrong, when he said that if the different liveryes succeeded in founding a University of the City of London, which should be affiliated to Schools of Art and the Schools for instructing persons in the science of mechanics, they would not be open to the abuse which had been lavished upon them. Last year at the distribution of prizes to the Students of the Metropolitan Drawing Classes in connection with South Kensington (which have increased in seven years from 173 to 765), Sir J. C. Lawrence, M.P., spoke hopefully of the scheme as one which would greatly delight the hearts of all teachers connected with Science and Art Schools; while Sir Antonio Brady, and

Sir John Bennett, gracefully acknowledged the deep debt due to the South Kensington Museum for the great encouragement it afforded to that class of teaching, upon which in these days of free trade the trade and commerce of this nation so much depend. Without waiting for the realisation of the University ideal some of the Companies have already taken action, with a view to the encouragement and improvement of technical education.

Prominent in the good work stand the Ironmongers, who, to their credit be it recorded, devote the whole of their funds to educational purposes, affording assistance to no fewer than thirteen-hundred schools. The Drapers have promised 2000*l.* a year towards the establishment of the technical University, and proffers of the same assistance have been volunteered by the Clothworkers, who have increased at one bound their annual donation from ten, to one-hundred guineas to the funds of the Artisans' Institute. The Goldsmiths have also set an excellent example, which might be advantageously followed by other Guilds. They offer an annual prize for the best design for some article in gold or silver, which when manufactured shall exceed thirty ounces in weight; another of 50*l.* for the best model, for some such article, and 25*l.* for the best execution and workmanship. There are also three prizes of 25*l.* for articles under thirty ounces, and two of the same amount for the best specimens of chasing and engraving. To complete their liberality, the Company have founded a Travelling Scholarship of 100*l.* per annum, to a student of exceptional talent, who shall have obtained a prize for design for three successive years, in order to enable him

to study art in the precious metals on the Continent. The Turners, too, are initiating an exhibition which promises to be both attractive and useful. These are judicious investments, which cannot fail to bear good fruit among the skilled artisans in whose interests they have been made.

From the various paragraphs which have appeared in the morning papers relating to the deliberations of the committee of scientific men and merchants to whom the inquiry was entrusted last year, there is every prospect of the project being auspiciously floated on a basis worthy of the first city in the world. As at present designed, the proposed institution would be not so much a teaching as an examining body; supervising a large number of affiliated schools; giving a certain amount of money help; providing prizes, exhibitions, and rewards; maintaining a certain uniformity of standard corresponding with technical schools on the Continent; getting the earliest trade information, and establishing a museum of trade-patterns, and a technical library. Science in its industrial application would, of course, receive a large share of attention, but there would be no disposition to compete with literary and scientific institutions proper. The draft scheme of the Clothworkers suggests that the senate and executive council of the university should be nominated by the contributory corporations, and that the first step to accomplishing the great object they had in view should be to establish a central technical college, with a suitable building, with professors and teachers of the first eminence to teach the industrial applications of mathematics, chemistry, physics, and mechanics, the students being qualified by sufficient knowledge of science and art in elementary and advanced schools before entering the laboratories, workshops, and classes of the technical college. It is not proposed that there should be a separate building for the central university, as distinguished from the college. Existing technical schools and institutions would be developed and improved, and new ones established in the seats of special industries. The estimate of means which might probably be provided in the first seven years includes 50,000*l.* for a site of not less than an acre, with building and furnishing; 10,000*l.* per annum towards the expenses of the central institution; 10,000*l.* capital fund for establishing and extending schools of technical education in London; 3000*l.* per annum for their maintenance; 2000*l.* per annum for bursaries to cover education and maintenance of distinguished students during a course of advanced technical and scientific training; 1000*l.* per annum for prizes in connection with technological examinations; and 4000*l.* for grants towards the advancement of technical education generally throughout the kingdom. It will be seen that this suggests a building and establishment fund of 60,000*l.*, and an annual income of 20,000*l.* But even this is not beyond the combined energies of the wealthy Liveries and the Common Council.

LEONARDO DA VINCI AS AN ENGINEER.



ISTORY confirms the opinion that every great epoch is preceded by a period of—oftentimes very slow—initiatory preparation. The development of the handicrafts and arts in the middle ages gave the impulse to

scientific observation, resulting in experiences and facts which admitted of no doubt, but whose origin, and the way in which they had arisen, remained unexplained, because they were unaccompanied by proof and demonstration.

Political events usually go hand in hand with the advancement of culture. Thus Italy became the land of enlightenment at the period when the individual attained his proper position; when in many of the small states and republics work animated all, combined with the exertions to maintain their independence; when the ocean-ruling fleet of Venice brought the Orient nearer the Occident; when the efforts of rising to power in the flourishing time of industry and art were crowned with success, and no means were left untried to concentrate certain industries in special localities for the purpose of perpetuating their power; when wars were waged by one party merely for the sake of wresting from the others their industries; when inventions were considered national property and held in so high estimation that disclosure of them was regarded as high treason and even punished with death.

Such were the views and aspirations of that time, and simultaneously with the political events advanced the industrial progress.

Roger II. of Sicily, desirous of introducing into his country the rearing of silkworms and silk-weaving—seeing that both brought great wealth to the Greek colonies—made war upon Greece, and having achieved a victory, carried away with him everything that was necessary for establishing silk-industry at Palermo. When Lucca was in possession of the silk-cultivation and silk-manufacture, it secluded itself, and by its power and wealth derived from this source aroused the envy of its neighbours, and so brought ruin and destruction upon the town by being overpowered. For nearly one-hundred and twenty years Bologna enjoyed the advantages of a spinning-machine by Borghesano, gaining power and building marble palaces, until the secret of the machine was betrayed, the consequence of which treachery—according to the chroniclers—deprived thirty-thousand people of their livelihood and reduced them to starva-

tion. This example shows the great and remarkable influence of important inventions, and the peculiar position of the development of handicraft in the small states system of Italy. In like manner the glass-makers at Murano in Venice isolated themselves from all the

lived at that time distinguished inventors and improvers of the various handicrafts far more numerous than the few names which have been handed down to us indicate.

Besides the wealth and power, numerous incentives for study, for the investigation of the forces of nature,



IO WATCHED BY ARGUS, LIBERATED BY MERCURY. FROM THE WORK IN ROME, ATTRIBUTED TO APOLLO.
WOLTMANN'S "GESCHICHTE DER MALEREI." LEIPZIG, 1878.

world, and kept their art secret to their own advantage ; and similarly the cloth manufacturing industry of Florence was preserved as unique.

All these facts point to a period of preparation respecting which very little is known. There must have

must have proceeded from the development of industry, as is manifest by the means employed in them.

As history cannot be written without a retrospective survey of the preceding periods, so a history of technology cannot be composed without a thorough investi-

gation of the sources containing records of this period of preparation, and much less a history of the inductive sciences.

Wherever we look in the wide domain of applied mechanics we find the influence of inductive sciences effectively at work. The contemplation of nature, and natural philosophy, are the sources whence we draw all our appliances, and the production of the latter is the more multiplied and successful, the more the study of physical sciences has been cultivated. This is proved by the history of the inductive sciences as well as by the history of the ancient philosophers. With Thales natural philosophy assumed a definite character about 600 B.C. It was continued by Pythagoras, and developed in certain directions. Hippocrates, Socrates, and Plato learnt from nature, and based their philosophies on such observations. Herodotus and Theophrastus knew how to estimate physical science, and their works were made subservient to it. Aristotle, perhaps, understood best the immense importance of natural philosophy and endeavoured to find out the laws of nature. If for that purpose he pursued in many things absolutely wrong paths, his writings and his exertions were of the greatest influence, and henceforth—long, too long even in slavish acknowledgment of his authority—mathematics, mechanics, astronomy, &c. were practised in his spirit by following his beaten tracks. The museum at Alexandria and its *savants* could not emancipate themselves from Aristotelian influence, although some, such as Euclid, Eratosthenes, Hipparchus, and Aristarchus pursued an independent course. The theories of Aristotle were deficient in clearness, and without proceeding from actual experience or experiments, they simply consisted of speculations, very often ingenious, it is true, and closely verging upon truth, but without proof and demonstration from the nature of the things themselves.

Like a luminous hero of real inquiry, penetrating the laws of nature, Archimedes made his appearance (287–212 B.C.), of whom Leibnitz said: "Whoever is able to understand Archimedes, will pay less fervid admiration to the discoveries of modern times."

Plutarch's opinion of the intellectual powers of this man, of his disposition, and his zeal as an inquirer, is of the utmost importance to us. Unfortunately our knowledge of his life, and the apparent multitude of his works, is but of a very incomplete kind. The accounts of them recorded by other writers only serve to make us regret the more painfully the great loss. In the same manner as Archimedes' inventive mind enriched most parts of mathematics with important inventions, so also his thought contributed to mechanical knowledge. Of all his works his writings only on the sphere and the cylinder, on the dimensions of the circle, the calculation of sand, on the spiral, conoids and spheroids, on equilibrium and the *centrum gravitatis*, on the quadratic parabolas, are known to us. But even these we are only acquainted with from the criticisms of Isidorus and

his pupil Eutocius, who wrote a valuable commentary on them. From various writings of the middle ages, however, it would seem, that there were other writings of Archimedes extant, which, alas! appear to be lost. And what is yet more to be regretted is, that with his death also his laws and theories were quickly forgotten, and that not long afterwards natural philosophy reverted again to the Aristotelian method.

"Archimedes had roused the intellectual world from its lethargy, but it soon lapsed again into its previous passive repose, and the science of mathematics remained stationary at the point that had been assigned to it."

Among the later natural philosophers Ptolemy is a name of eminence so far as he is known to us from the remains of his writings, as anterior to him Hipparchus was of conspicuous importance in astronomy.

But of both these great men we have only very scanty records.

The method of the middle ages of contemplating nature turned back to Aristotle, and Archimedes' influence was forgotten. Even Pappus, one of the best mathematicians of the Alexandrian School (400 B.C.), no longer professed any knowledge of the tenets of Archimedes; and the commentary and critical work of Isidorus and Eutocius on Archimedes' writings was ignored, and only after the lapse of centuries brought to light again, or rather rediscovered.

Whewell, speaking of the anterior period of Galileo's time in his History of the Inductive Sciences, remarks in the Prelude to the Science of Statics:—

"Archimedes established satisfactorily the doctrine of the Lever, some important properties of the Centre of Gravity, and the fundamental proposition of Hydrostatics. But this beginning led to no permanent progress. Whether the distinction between the principles of the doctrine of Equilibrium and of Motion was clearly seen by Archimedes, we do not know; but it never was caught hold of by any of the other writers of antiquity, or by those of the Stationary Period. What was still worse, the point which Archimedes had won, was not steadily maintained. . . . And, in speaking of the indistinct ideas of the Stationary Period, we have seen that the attempts which were made to extend the statical doctrine of Archimedes failed in such a manner, as to show that his followers had not clearly apprehended the idea on which his reasoning altogether depended. The clouds which he had, for a moment, cloven in his advance, closed after him, and the former dimness and confusion settled again on the land. This dimness and confusion, with respect to all subjects of mechanical reasoning, prevailed wholly at the period of the first promulgation of the Copernican opinions."

But in this darkness a brighter mind arose, a remarkable man far in advance of his age, by the abundance of his knowledge, his clear apprehension of the mode in which real knowledge had been acquired and must be increased, and with ideas and views strongly contrasting with the

feeble mode of thinking prevalent in his time (1214-1293), of whom it may truly be said, what was attributed to his great namesake Sir Francis (Lord Verulam), who lived more than three hundred years later, "he broke through the scholastic obscurity of the age, like the sun from beneath a cloud, and showed mankind the necessity of thinking for themselves in order to become truly learned."

Roger Bacon, emancipating himself from the traditional authority of Aristotelian wisdom more than any of his contemporaries, or the learned men who lived before him, inculcated the supremacy and importance of the experiment, and looked down upon the knowledge of his era as upon the "infancy of science." From Arabic writers, as has often been maintained (even by Whewell),

viously, was either forgotten, or not inquired into in presence of the rapid progress of the inductive sciences, nor was it known how far the ideas of these two great philosophers were original.

Whewell, indeed, has chronicled many valuable achievements in the progress of astronomical development of the 13th, 14th, and 15th centuries, but as regards the mechanical laws, he mentions between Archimedes (287-212 B.C.), and Galileo (1602), but few of any importance, and even these, such as Cardanus, Ubaldi, Benedetti, and Varro, belong already to the 16th century. Moreover, he admits that he was not well acquainted with that period, as it had not been investigated up to the time he wrote his history. At the conclusion of the chapter,



TURKISH POTTERY.

Roger Bacon could not have learned, for they were likewise devoted to Aristotelian views, and he rose so far above them! Standing alone in his time, his educated mind gave the impulse to independent thought and self-creating activity; and with him commences that line of philosophers who endeavoured to break asunder the shackles of traditional views and perception, and the revival of the sciences following nature.

According to general acceptation the resuscitation of physical science from its dormant position is contemporaneous with Galileo's appearance (1602). Yet little is known of the intervening preparatory period, which was overshadowed by the lustre of ideas and the brilliant laws of Copernicus and Galileo. What was known before them, and who had worked in the same direction pre-

after having shown how Benedetti in 1551, in the demonstration illustrated by the throwing of a stone, explained with conspicuous clearness the principle of accelerated motion (which even Galileo made his own much later), he says:—"Though Benedetti was thus on the way to the First Law of motion,—that all motion is uniform and rectilinear, except so far as it is affected by extraneous forces;—this Law was not likely to be either generally conceived, or satisfactorily proved, till the other laws of motion, by which the action of Forces is regulated, had come into view. Hence, though a partial appreciation of this principle had preceded the discovery of the laws of motion, we must place the establishment of the principle in the period when those laws were detected and established, the period of Galileo and his followers."

AN IMPERIAL MUSEUM FOR INDIA AND THE COLONIES.

THE Paris Exhibition has accomplished more than could be hoped for by the most sanguine in bringing into prominence the claims for the establishment of a Colonial Exhibition in London; and now that the prospects of peace in Europe are grown so bright, we return to the subject as one of paramount importance.

Seldom, if ever, has any public movement met with more general favour and influential support than that for which we are indebted to Dr. Forbes Watson, who has so sedulously and so ably advocated the establishment of an Imperial Museum for India and the Colonies. Since the project was first mooted, no fewer than fifty Chambers of Commerce and other corporate bodies have memorialised the Government in its behalf. In the year 1876, Mr. Frederick Young, the indefatigable honorary Secretary of the Royal Colonial Institute, addressed in the name of the Council a circular to the various Colonial Authorities, pointing out the advantages of the scheme, and soliciting their co-operation. To that appeal cordial responses have been received. It is also gratifying to know that the proposal has been warmly approved by many working men's clubs and institutes,—a class specially interested in the Museum, who will likewise supply a large number of visitors. Our metropolitan and provincial contemporaries, of all shades of opinion, have given in their adhesion to Dr. Watson's plea in no unstinted measure. Appreciating the benefits likely to accrue from a properly equipped and efficiently managed Institution of this kind, alike in an educational and a trade point of view, the leading commercial firms of London have combined to offer their support. The first practical proof of their sympathy was afforded by the important meeting held at the Mansion House, under the presidency of the Lord Mayor. Resolutions in favour of the proposed Museum, and urging the Government to grant as a site the ground of the old Fife House on the Victoria Embankment, were moved and supported by such representative men as the Right Hon. E. P. Bouverie, Mr. Twells; Professor Fawcett, Sir George Campbell, Alderman Carter, Mr. Matheson, and last, but not least, by Mr. Campbell, who spoke for his fellow artisans. The demonstration was to have been followed up by a deputation to Downing Street, which had our best wishes for its success. The Treasury is proverbially flinty-hearted, and difficult to move in such matters, but we now know that the grant from the national exchequer will receive favourable consideration when it is presented to Lord Beaconsfield, since his lordship has intimated that whilst he is fully sensible of the interest attaching to the question, and regarding it as one to be carefully kept in view by her

Majesty's Government, is of opinion that the time is not come for its accomplishment.

Meanwhile a few facts concerning the proposed Imperial Museum may not be unacceptable to our readers. In the first place the site is one of the most central and prominent in the metropolis. By connecting the Indian Library with the Indian Museum, and establishing a Colonial library and reading room in conjunction with the Colonial Museum, the new building would combine within its own walls all the sources of information which are available with regard to the commercial, social, and political condition of the whole empire. The offices of the "Agents General" for the different colonies would be placed in connection with their respective sections in the Colonial Museum, and those of the Reporter on the products of India with the Indian Museum. Moreover, should the suggestion of locating the Royal Asiatic Society and the Royal Colonial Institute under the same roof be adopted, the museums would be brought into direct relation with all the currents of public opinion prevailing with respect to the subjects illustrated by these collections. The founding of lectureships forms a part of the scheme, which we hope to see carried out in the most liberal manner.

Another noteworthy feature is the utilisation of the Imperial Museum as a kind of depot from which information should be supplied to the entire country. It is contemplated to have sets of trade collections, in which the products of India and the Colonies shall be shown, according to classification, side by side with similar commodities from other nations competing with them in the market of the world. Nor would the value of the sets end here, seeing that they would be afterwards available for general distribution. We need not say that by this means the institution, instead of being merely local, would become national in the widest sense. Everything, however, depends upon the cost. The value of the site alone is computed at 200,000*l.* Other 250,000*l.* would be required for a building of fair architectural proportions with 180,000 square feet of space, the annual rent paid by the mother country, and by the Colonies jointly, to be raised by a charge to each exhibitor of half-a-crown for each square foot of ground occupied. As he very properly puts it, the question resolves itself into this—whether at a time when 352,000*l.* is being spent on the Natural History Museum, and when 210,000*l.* is the annual grant for museums, etc., it is advisable to spend the amount above indicated in order to establish an institution which would represent the resources of the whole British Empire. That such an expenditure would be not only desirable but profitable in every sense must be admitted by all who wish to strengthen the political, commercial, and educational relations among all the dominions of the British Crown.



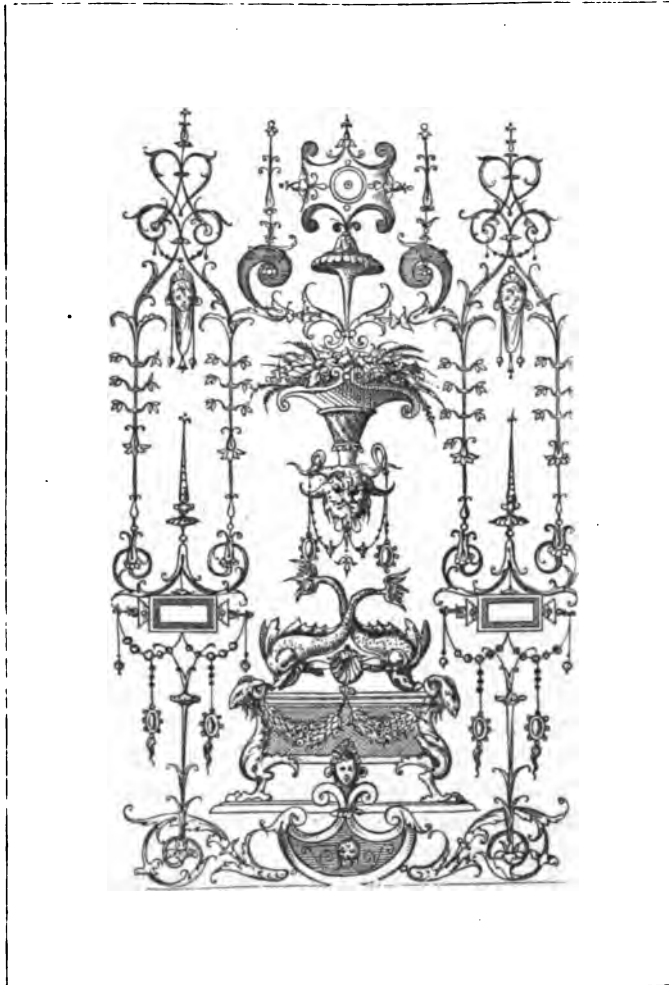
GLASS PAINTING IN THE MIDDLE AGES.

BEFORE offering a short sketch of the art of glass painting in the Middle Ages, it may be interesting to take a glance back and consider how far glass and the use of it was known in former times.

Glass painting, properly so called, is a comparatively modern art, and not to be confounded with glass staining ;

into Christian churches. Probably from a want of technical knowledge, perfectly clear glass was of comparative rarity about this time, and therefore most highly prized.

Pliny mentions a sumptuous theatre which the Ædile Marcus Scaurus had built, and gives an account of its decoration with 300 pillars and 3000 fine statues. The upper story of this building had walls inlaid with gold, the lower was enriched with slabs of marble, whilst midway the walls were decorated with sheets of glass fastened on with rosin.



ELEGANT DESIGN, FROM A WORK OF THE 16TH CENTURY.

the latter process consists of mixing metallic oxides with the vitreous matter whilst in a state of fusion, thereby obtaining several different colours.

That the ancient Romans were conversant with the manufacture of stained glass is amply proved by the existence of the Portland and of other vases, but that they likewise applied it to the decoration of windows is by no means equally apparent. Indeed, such fragments as have been found at Herculaneum and Pompeii are all white ; at the same time we know that coloured windows were set up in heathen temples, soon after they were converted

The Emperor Aurelian had a similar arrangement made for the walls of his palace after his victory over Zenobia. The art of joining small pieces of glass together with lead, so as to form a pattern, was undoubtedly familiar to the Romans in early times ; occasionally it may have been used for windows, but it was by no means a universal custom, and one which almost fell into disuse during the Dark Ages. Thus in the 8th century we hear of a slab of alabaster doing duty for glass in the church of San Miniato at Florence, and of a similar arrangement being made in the churches of St. Peter and St. Paul at

Rome, whilst in most cases linen, parchment, and paper soaked in oil answered the purpose.

In the 4th century Lactantius mentions glass windows, and in the 6th century Fortunatus of Poitiers speaks of one in the church of St. Andrew at Ravenna with an enthusiasm which clearly shows that it was considered an achievement. From another source we have an equally glowing description of the church of St. Sophia at Constantinople about the same time.

That the glass used for church windows was in all probability coloured, may be inferred from an anecdote related by Gregory of Tours. A thief broke into a neighbouring church, and finding there little to satisfy his greed, he wrenched the glass from the window frames, hoping that by melting it he might be able to obtain the gold with which he supposed it to have been coloured. But after subjecting the glass to great heat for the space of three days, nothing but a shapeless mass remained, and finding no metal as he expected, the thief sold the stolen property to some foreign merchants for a small sum and was thus discovered.

It was in common belief that the various hues which enriched the windows during these ignorant times were obtained by the admixture of precious materials, such as gold, amethyst, sapphire, topaz, etc., whilst the vitreous matter was in a state of fusion. This idea was probably fostered by the glass makers themselves, with a view to enhance the value of their trade. Thus we find the Abbé Suger, the favourite of Louis VI., and Regent of France under Louis VII., also labouring under this delusion. In his work upon the "Discipline of Monks," he says that workmen were collected and brought from a great distance to decorate the Benedictine Monastery of St. Denis, their orders being that they should spare no expense in obtaining the necessary colours from such costly materials as sapphires, amethysts, gold, etc.

Anastasius, in his life of Pope Leo III., says that the window in the apse of St. John Lateran, was filled with coloured glass. Prudentius mentions the Basilica of Constantine, and St. Paul's without the wall.

But turning our thoughts towards home, we find Benedict, Abbot of Wiremouth, sending to France for builders and glass makers, with the intent that the windows of the chapel and refectory of his monastery might be glazed. This was in the year A.D. 674. In 726 we discover Wigfrid of Worcester following his example.

As far as private dwellings were concerned, glazed windows were of very rare occurrence during the Middle Ages. In France they were sometimes employed about the beginning of the fifteenth century, but England was nearly a hundred years later in adopting the fashion.

Glass mosaics gave rise to a desire to represent geometrical designs and figures by various arrangements of the cubes. It is but natural to suppose that some such idea was followed by the early glass stainers; it may have been that their endeavours to represent objects more perfectly gave rise to that art which we now term glass painting.

Its exact origin is lost in obscurity, but we will endeavour to give some account of a few of the earliest authentic specimens now in existence; these date from about the beginning of the eleventh century. There is, however, on record that a portrait of King Constantine VII. was admirably executed upon stained glass A.D. 949.

The manner in which these primitive paintings were prepared was extremely simple. The pieces of stained glass being fitted together, the shadows were painted on in black or bistre, which being subsequently fired were thus rendered permanent.

Glass painting in its infancy, and for some time subsequently, appears to have had less affinity to art than to a skilled trade. These early manufacturers were all in all to themselves in those times; such ideas as division of labour being unknown. They were at the same moment glass makers, colour grinders, designers and glaziers. For the time being they were only acquainted with the use of one colour, with which they carefully drew in the shadows, leaving transparent glass to represent the high lights. For ornaments in the border of the picture or draperies, sometimes a flat tint was laid over the entire surface, and the light picked out with the top of the brush. As a proof of whether the burning in had been sufficient, trial was made of whether the coloured surface would stand scratching, if so, well, if not, it was returned to the oven.

As a general rule, the history of glass painting has been divided into three periods.

The first period, from the time of its development, about the year 1000—1400 A.D. From thence to its climax, 1600. Thirdly, from 1600 to 1800, the period of its decline. This division would, however, be more accurately correct if we shortened the second period to the extent of fifty or sixty years, assuming it to end about the middle of the fifteenth century.

One of the earliest reliable instances of glass painting on record may be found at Rheims. We are told that when Adalbert was raised to the archiepiscopal chair, he caused the cathedral to be decorated with ornaments of gold and silver, and with windows upon each of which an emblem or device was painted. The Germans are ever eager to show that this art took its rise in the "fatherland." They claim Adalbert as a German by birth, who obtained his bishopric through the favour of Otto I. They argue that therefore he probably invited artists to come from Germany and undertake the work.

In 999 Count Arnold presented some windows to the Bavarian Monastery of Tegernsee; to execute these it is supposed that painters came from St. Galle, or Constance, the monks of both places being renowned for their skill in glass painting. In 979, Tegernsee was occupied by Benedictines from St. Galle, their predecessors having been scattered by the downfall of Hungary. Thenceforward this monastery became the cradle of the new art, which, principally from this source, overflowed the whole of Germany and France.



NOTES ON THE PARIS EXHIBITION OF 1878.



IT requires but very little effort of the imagination to picture to oneself the feeling of awe mingled with admiration experienced by the possibly uncouth, but certainly very acute sons of the patriarch Jacob, as the little crowd of rustics trooped through the crowded streets, and gazed as they went, upon the wonders of the Royal City where the ruler of Egypt dwelt, in whose palace the half-famished men would presently stand face to face with that very brother they had so despitefully used. It is more difficult to realise the cause of the stolid indifference manifested or assumed by some deputation of North-American Indian chiefs to all the novel surroundings of some neighbouring settlement of Europeans, with its multitude of seemingly needless appliances, without which the pale-face would find himself almost helpless. Widely different as are these cases of Hebrew quickness of apprehension on the one hand, and the red man's stoical disregard on the other, we noticed as extreme contrasts in the countenances and actions of the visitors to the Paris Exhibition the other day. Here one might notice the genuine enthusiasm of the cultivated gentleman freshly arrived from some remote colony, as he sought to rivet the attention of his large party of young people upon some one object of surpassing beauty out of the endless succession of beautiful things about him. Here were impassive people who stared not so much at the surrounding works of art, as at the crowd who have the temerity to give the rein to their emotions instead of schooling themselves to the well-bred principle formulated in the phrase, *nil admirari*. Of course, where there are so many and diverse works of the highest class of human industry, so many evidences of man's genius,

patience, and labour in all their various aspects, it is out of the question to institute comparisons, as it is impossible to study them methodically. One feeling of wonder fills the mind of the thoughtful visitor; the place itself generates wonder, the surrounding objects heighten and intensify wonder, and if one stops at some point whence a view of the whole scene can be taken in at a glance, the mind is filled with wonder, wonder that France has succeeded after all in producing a Universal Exhibition which for many a long year to come will be justly styled "*the Universal Exhibition*;" or if we walk through the courts and halls and alleys, only stopping occasionally to survey with admiration some work of art, we go away at last, almost convinced that our Industrial Arts in these special directions can no further go. To exceed them in beauty of workmanship is simply impossible, to improve in design or add to the cultivation of the taste seems hardly to be expected, and a feeling of wonder and admiration is the only result of one visit or of fifty. The great dome of the Trocadéro, with its gilded figure of Renown capping it all, covers a space as wide as the Albert Hall, and is capable of holding as many visitors; is wider, in fact, and more lofty, than St. Peter's at Rome. It is a masterpiece of architectural skill, which occupied but eighteen months in its construction; the work of Messrs. Davioud and Bourdais, carried out by Raulin, the clerk of the works, and the contractor Masselin. The style is of a Greco-Byzantine type, of which happily in England we have no example; there is a large church at Marseilles of the same character of design, with whose appearance we had no reason to feel satisfied. But the Trocadéro being of immense size, carries its broad lines of red and white coloured marbles with a better grace; the towers, again, are novel in form, they perhaps may be said to slightly resemble the old palace at Florence. The wings, which stretch out on either hand in the form of colonnades, are of white stone, with broad lines of a beautiful Pompeian

red colour in alternate layers, recalling the style adopted in the churches of Auvergne. Their surfaces are broken by occasional gilding and mosaics, Greek flowing lines, and other surface decorations, into which colour has been judiciously introduced. There are two frontages to the Trocadéro; that facing the Rue de Rome is by no means so imposing as the proper front, which looks over the garden towards the river and the Champ de Mars. From the garden frontage is attained a panoramic view which for beauty cannot be equalled in the world. From the terrace above the cascade, Paris can be seen in all its beauty, bounded in the distance by its green surrounding rising grounds and distant woodlands; within this unrivalled setting its brightest jewels, in the shape of its well-known buildings, glisten in the sunlight—the New Opera, the Louvre, the Sainte-Chapelle, that glory of the architect's divine art, Notre Dame, Saint Sulpice, Sainte Clotilde, le Panthéon, the Val de Grâce and the Invalides, whose gilded dome glows resplendent in the sun. In the near foreground is the palace of iron and glass, and just beyond, the École Militaire; then there are the tall chimneys of the workshops and the red tiles of the many roofs partially concealed in the verdure of the surrounding trees. In the park beneath are scattered the superb models of buildings in common use amongst the dwellers in foreign lands; but so perfect are these in the details of their construction, that one needs to undergo no distant and laborious journey to study the requirements of a Moorish or Egyptian, Persian or exclusive Japanese proprietor, since to the minutest detail their homes, and every day appliances, are laid open for our curious inspection. Mariette Bey, the French Egyptologist resident at Cairo, to whom Europe and the Khedive owe so much for his contributions to our knowledge of ancient Egypt, has constructed for us an Egyptian house of olden times, copied from one still existing at Abydos, which will well repay a visit. Thanks to the indefatigable curator of the Egyptian Museum of Antiquities at Cairo, as much as to the restored confidence of the public in the financial prosperity of Egypt, quite recently the Khedive has lent a willing aid to this enterprise; ever a prince amongst princes, he found the requisite funds for the materials of this structure, the house to which we refer, though starting late in the season, now rests complete as though it had taken months to build.

It was something to boast, in contemplating the permanent building of the Trocadéro, that France or rather the Republic could vote so many millions of francs for such a purpose, after all the sufferings her sons had so recently passed through. The noble edifice will in the future be one of the most enduring evidences of the rapid recovery France has made.

The terrace of the Trocadéro is enriched by the presence of two superb allegorical groups of marble, representing Air and Water, by the sculptors Thomas and Cavelié; there are besides six other groups, representing North America, by M. Hiolle; South America, by

M. Millet; Africa, by M. Delaplanche; Oceanica, by Maturin Moreau; Asia, a Japanese design, by M. Falguière; and Europe, wearing a Greek helmet, by M. Schoenewerck. Then the cascade, itself a marvel of beauty, has associated with it two fine specimens of sculpture by Cain, who has produced a superb representation of a bull roused to action by the presence of danger. This work is full of genius—the massive head, the great throat and chest elevated in the moment of breathing out a challenge of defiance, as the fore leg is advanced, and stamps upon some rising ground. The other work is by Alfred Jacquemart; it represents a rhinoceros, and the sculptor has thrown into his work an amount of knowledge which raises it to the highest position amongst the many works with which it can be compared in the Exhibition. M. L. Blanc, the writer in the *Temps*, speaks of this Rhinoceros as “énorme, massive, trapue, dont le nez est une corne, dont la peau est une cuirasse, dont la queue rudimentaire et courte est le contraire d'une élégance.”

Among the 32 exhibitors of artistic furniture, all the three great portions of the realm are represented. Ireland sends one firm, but Scotland boasts two. The majority, 23 competitors, are London makers. The remaining six represent Leeds, Oxford, Birmingham, Sheffield, Exeter, and Manchester. The last class but one in the group of “Furniture and Accessories” is oddly enough devoted to perfumery, though how or why “cosmetic and perfumed oils” should be included among house fittings is not very apparent.

With class 30 commences the 4th great group of exhibits. This includes textile fabrics, clothing, and accessories. Manchester, or rather Lancashire generally, occupies the large portion of this part of the British Section, though a few Irish firms will also be found. Yorkshire is well represented in the woollens, a remark which also applies, though in a less degree, to Galashiels. In class 35 (shawls), there are only three exhibitors, of whom only one is an English firm. Of the other two, the first in the catalogue is His Highness the Maharajah of Kashmir, and the other a French maker. Jewellery and precious stones seem to be included among the “accessories” of textile fabrics, though to the uninitiated they hardly appear to fall under the denomination of articles of clothing. There are sixteen exhibitors, most of whom are from London, Belfast, Dublin, or Edinburgh. Birmingham, the great gold smithy of England, only claims one firm in this class. This anomaly may be explained by the fact that Birmingham makes largely for the London market, so that it is probably well represented, although not by name. The last class in the group is devoted to toys.

The fifth large group comprises seven very large classes, and deals with mining industries and raw and manufactured products. In the first of these classes—that on mining and metallurgy—there are the large number of 108 exhibitors, or nearly one-ninth the entire

provincial list. Among the several districts, the Midlands, with Birmingham for its centre, is represented with the same number.

Products of the cultivation of forests and of the trades appertaining thereto, which make class 44 in this group, have only brought one exhibitor, who shows polished panels of the various woods used in the manufacture of furniture and pianofortes. The remaining classes are the products of hunting, shooting, fishing, and spontaneous products: machines and instruments connected therewith, 12 exhibitors; agricultural products not used as food, 7 exhibitors; chemical and pharmaceutical products, 89 exhibitors; chemical processes for bleaching, dyeing, printing, and dressing, 8 exhibitors; and leather and

teaching drill movements. The number of classes in this group is 19, the exhibitors reaching the total of 550. The four largest classes in the group are processes and apparatus of civil engineering and public works and architecture, 81 exhibitors; machines and apparatus in general, 79 exhibitors; agricultural implements, etc., 66 exhibitors; and navigation and life-saving, 51 exhibitors. The smallest class in the group is the last one, which has been already referred to. The next in the number of exhibitors are machines, instruments, and processes used in minor trades, 7 firms; apparatus and processes used in the manufacture of furniture and objects for dwellings, 8 exhibitors; and telegraph apparatus and processes, 8 exhibitors. The seventh great group is divided into seven



SPECIMENS OF THE NEW HAVILAND WARE, AT THE PARIS EXHIBITION.

skins, 16 exhibitors. This makes a general total for group five of 241 exhibitors, or nearly equal to one-fourth of the whole of the provincial representations. The sixth group, commencing with class 50, consists generally of apparatus and processes used in the mechanical industries. They are further subdivided in the first four classes into apparatus and processes used in the act of mining and metallurgy, in the cultivation of fields and forests, in the preparation of food, and in chemistry, pharmacy, and tanning. A number of smaller tool classes follow, which contain an exhibition of the innumerable instruments used in the general manufacturing trades. In the last class of this group, which exhibits materials and apparatus for military purposes, there are six exhibitors, whose exhibits range from armour plates and steel shot to models for

classes, and deals with alimentary products. Cereals, farinaceous products, and products derived from them form the first class in this group, or that numbered 69. They find 15 exhibitors, among whom is a gentleman rejoicing in the Pickwickian name of Snodgrass. Next come bread and pastry, 11 exhibitors; fatty substances used as food, milk, and eggs, 6 exhibitors; meat and fish, 14 exhibitors; vegetables and fruit, 1 exhibitor; condiments, stimulants, sugar, and confectionery—a sweet mixture—23 exhibitors; and fermented drinks, 31 exhibitors. This gives 107 exhibitors for the whole class. Agriculture and pisciculture make the eighth great group; but this, with the next, that devoted to horticulture, is not fully set forth in the detailed portion of the catalogue. The former consists of 9 classes, and the latter of 6.

The tabulated summary of the whole of the classes is as follows :—

GROUP	I. 5 classes.	GROUP	VI. 19 classes.
"	II. 11 "	"	VII. 7 "
"	III. 13 "	"	VIII. 9 "
"	IV. 13 "	"	IX. 6 "
"	V. 7 "		

Russia we stated some months ago on the authority of the daily press of St. Petersburg, would for reasons that seemed obvious enough at the time, be absent from Paris, so far as her national contributions were concerned, but the Russian government had no idea of being left out on the present occasion, and in fact Russian manufacturers have contributed a far better show than on any previous occasion. Perhaps this evidence of her unhalting strides in the march of civilisation is given with the purpose of impressing her creditors with the almost inexhaustible resources of her vast empire, and that she is even now in a position not only to pay the enormous interest on her debt, but at no distant time to monopolise by her own industries the markets of the far east, with which she is at least geographically a neighbour.

There is something to be learned from Russia at the Paris Exhibition in the manner of displaying goods which would be to our own advantage if adopted on future occasions, thus the display of her woollen fabrics is infinitely more attractive to the general public than ours; the labels on the various articles show a map of that portion of the vast empire where the town is situated whence come the specimens so deftly set forth.

The Imperial Technical School of Moscow sends a fine display of tools of all kinds, from steam engines to hand-saws; showing conclusively what Russia thinks of the advantages of technical education. Perm sends iron of every form. South Russia sends coal of a fair manufacturing description, with ores of copper and iron. Poland sends sulphur, but the woollen goods are of the most interest, since they are of a very recent growth in Russia. Half a century ago the breed of sheep was first introduced, and although the "muttons" are not so abundant to-day as the bondholders could wish, the goods are of so superior a quality, it will only need a few years' peace in the rich lands of South Russia (if the Congress will only give them the rich lands) to recover the industry which has met with a temporary check in Lurnbrick and the other manufacturing districts.

Of the flax and hemp produce, the cambrics and linens and shirting, there are abundance of specimens to illustrate the enormous trade in these commodities. Silk is shown; the Polish process of culture is peculiar, and is so successful that the method deserves the instant attention on the spot of the Italian and other governments interested in the healthy cultivation of the cocoon producers themselves. We gave several illustrations of Russian bijouterie in our previous pages, but one article exhibited in Paris, a golden basket with a pure white silver napkin

thrown over it, is a masterpiece of art, of whose beauty an engraving could hardly convey any just idea.

These are reasons for the somewhat poor display of furniture, which is simply of modern Paris fashion, well made and good of its kind; but the copper work for domestic use, which has a wide sale in eastern Europe, is of especial interest. The pottery we have given a few examples of in our engravings is of only limited interest.

The engraving on page 25 represents a new and improved landau, shown at the Paris Exhibition, English section, under class 62. It is from the well-known manufactory of Messrs. R. Harrison and Son, coach-makers to the trade, 1, Stanhope Street, Euston Road, London, N.W., and embodies several of the patents of the firm. To show the perfect mode of construction of this landau, as well as the first-rate quality of workmanship and material, it has no paint, or trimming, so that all the interior details are laid bare, and open to the closest scrutiny. The peculiar characteristics of this class of carriage manufactured by Messrs. R. Harrison and Son, and for which they have obtained a wide celebrity in the trade, are first, its extreme lightness, which allows it to be drawn with the greatest ease by one horse, with ample space for four persons inside. This lightness, which is combined with great strength, is produced by the employment of steel plates, and close coupled light hickory wheels. The next important feature of the carriage is that the head is self-acting, fitted with Messrs. Harrison's "patent lift." A lady by the mere touch of her hand can either raise or lower the top, without rising from her seat. Self-acting, likewise, are the steps, which open and close with the doors, thus being always perfectly clear. A third feature of importance in this new landau is that its seats can be raised with the greatest ease by the turning of a handle, an advantage which will be no less appreciated by ladies who have regard for their dresses than gentlemen who value a comfortable seat, which some may wish higher and others lower. There is a last special feature in the carriage of Messrs. Harrison and Son, which not a few may look upon as the most attractive. It is that the springs hang in india-rubber ferrules, and that the axles are bedded in india-rubber cushions, which prevent all unpleasant noise and jolting, even on the roughest roads. Messrs. Harrison's landau attracts many admirers in the Paris Exhibition, particularly from among French coach-builders, masters and workmen—themselves no mean judges of perfection in their trade.

The influx of English visitors to the Exhibition, containing a large proportion of artisans, has set in very strongly. They are swarming all over the vast building, mostly in groups, talking loudly on the subjects under their eyes, and giving critical opinions on them. To judge from the articles undergoing the closest scrutiny, a great many of these artisans seem to be mechanical engineers, and not a few of them workers in engine manufactories. French locomotives encounter much

examination, but seem to get little praise, being pronounced generally very inferior to those turned out by English workshops as regards design, though exceedingly good in finish. What seems to be the greatest point of attraction in the Exhibition to English artisans is the so-called "gallery of manual labour," a long stretch of ground in the French section, where the producers of those objects of cheap luxury known as "articles de Paris" show their skill to all the world. Here jewellers may be seen making brilliants of "Paris paste," and

who, filing and hammering, arrange and put together the component parts, internal and external, of glittering pendulum time-keepers. The show in the "gallery of manual labour" is altogether very interesting, and it must be so to a special degree to English artisans as being an entire novelty, both in regard to mode of manufacture and condition of the workmen. The whole of them are persons carrying on their trades at home, entirely independent of "masters."

According to all the information I can gather, there is



ARM-CHAIR, BY MESSRS. GILLOW, IN WALNUT AND LEATHER.

inserting them in gilded and enamelled rings also manufactured on the spot, the whole work being done so neatly and skilfully, and looking withal so beautiful, as to astonish all not familiar with this branch of French industry. Then there are lace makers, with cushions spread on their knees, and bobbins flying through their hands, as balls through those of a street-juggler: there are hand-loom weavers, who, prodigiously swift, turn out fancy cravats, and similar articles; and clockmakers,

not the slightest complaint of overcharges, or attempts of extortion, among the crowds of Englishmen of the working-classes who now come flocking to the Exhibition. The price of food, it is true, is increasing, but still is not much above the old rate; and any traveller with a little experience in managing things, and, better still, with a little French on the tip of his tongue, can live here for about the same charges he would have to pay, as a stranger, in London, Manchester, or Edinburgh.

we notice that among the groups of artisans who are wandering through the immense galleries in the Champ de Mars there is generally a leader, with a knowledge of French, who guides his companions on their road, and procures desired information, by acting as interpreter. This is certainly an admirable arrangement, and, if generally adopted, tens of thousands of English artisans might come over for a holiday, and take home with them valuable information, bought at a comparatively trifling cost.

It has been remarked that the *fête* of the 30th of June, to celebrate the Exhibition of 1878, was of a truly national character; all parties claimed to share in what was ultimately accepted universally as a patriotic demonstration. The great feature, and the one which struck an observer at every turn, was the intense sincerity of every one and the thoroughly and unanimously national character of the *fête*. As additional details, may be mentioned that on the gate of the hotel of Madame Thiers, at the Place St. Georges, a wreath of immortelles was suspended, surrounded with tricolour ribbons, and bearing the inscription, "L'Absent." The illuminations at night were an immense success, and old Parisians declare that the like has never been seen in the city. Probably the extraordinary and long-suppressed enthusiasm that accompanied them added something to the imagination, but, making allowance for every accidental circumstance, the display presented this evening was such as could not be found outside Paris. Every advantage was taken of the natural and artificial beauties of the city in producing the general magical effect. Viewed from any standpoint, the spectacle was magnificent. From the Bois de Boulogne to the Tuileries there were two streams of uninterrupted dazzling fire, and the Place de la Concorde was one mass of brilliant festoons, through which might be seen the sculptured statues, the towering obelisk, and the playing fountains all brought into bold relief by the steady glare of the electric light. Standing near the Palais Bourbon, the eye of the spectator could grasp at once the Arc de l'Etoile beautifully illuminated, the interminable forest of light reaching as far as the Madeleine, and in the distance the dismal ruins of the late Imperial Palace standing out boldly as if in solemn mockery in the rays of the reflected brilliancy. Montmartre appeared prominently, looking in the distance as if covered with a cloud of fire. Indeed all the heights around the city were turned to account, with the effect of throwing down on the centre of Paris a flood of splendour which threatened to pale the internal illuminations. On the Grand Boulevards, and particularly around the Place de l'Opéra, the results produced by the combined lights and decorations were magnificent. The great National Academy of Music, with all its beautiful groups of sculpture presented in different tints, was of course the leading feature. From its front might be seen the Vendôme Column, surrounded with jets of gas, the

Tuileries, and the most striking part of the Grand Boulevard, realising the notion of fabled Eastern scenes. It was in this part of the city that there was the greatest stir amongst those who noisily celebrated the National *Fête*. All the day and up to a late hour in the evening, endless processions passed along the Boulevard, singing the "Marseillaise," varied occasionally with the "Chant du Départ," but there was nothing of the nature of a disturbance. Favoured by beautiful weather, an enormous assemblage of people proceeded in the evening to witness the fireworks and Venetian *fête* in the Bois de Boulogne. All passed off successfully, and, fortunately, so far as we could hear, without any serious accident. A torchlight procession, composed of a large detachment of troops and several military bands, proceeded from the Bois de Boulogne to the Place de la Concorde, and was witnessed by many thousand people. At midnight the crowds on the Boulevards were enormous, and from time to time a procession in costume, and bearing paper lanterns, marched along singing the "Marseillaise," and letting off fireworks. The Phrygian cap was in great favour as a head covering.

TECHNICAL EDUCATION ON THE CONTINENT.

(Continued from Vol. II., p. 116.)

AT the commencement of the present century the most distinguished men in the various departments of science were appointed to fill the different chairs at the Ecole Polytechnique, and M. Monge, the originator of the new descriptive geometry, was placed at its head.

The inauguration speech in which this learned gentleman explained his views as director of that institution of the duties of France, in regard to technical and scientific education, contains a mine of valuable observations which, even at the present day, are worthy of notice, as demonstrating with remarkable clearness and lucidity the means to be adopted for attaining the first rank among the nations.

"In order to emancipate France from the dependence on foreign industry in which she was hitherto enchained, it is above all things necessary," remarked M. Monge, "to direct public instruction to the acquisition of a knowledge of those subjects which require accuracy, an element which was entirely neglected hitherto, and the hands of our artists must be accustomed and trained to the use of implements of all kinds which serve for giving nicety and precision to the works performed. By these means the consumers will be educated to appreciate exactness and nicety, and will then place due value upon them; whilst

our artists, trained and acquainted from their earliest age with these requisites, will be able to execute their work accordingly, and so satisfy the demands of the consumers.

"Secondly, the knowledge of a large number of natural phenomena absolutely required for the advancement of the progress and development of industry must be made the common property of all; and lastly, the knowledge of the mode of application of those arts and machines must be disseminated among our artists, the object of which is either to lessen manual labour, or to impart to the work produced more uniformity and precision, and it must be confessed that in this respect we have much to learn from foreign nations.

"All these aims cannot be achieved otherwise than *by giving Public Education a new direction.*"

Thus, eighty years ago, at the commencement of that great organisation of technical schools, exactly the same ideas were at work which recently were advocated in favour of technical school reform in Austria.

"*Emancipation from the dependence on Foreign Industry*" as the aim, and "*a new direction to Public Education*" as the means for reaching this aim, these are to-day, as much as was the case at that time in France, the ruling impulses in Austria, and, we may add, in Germany, England, and elsewhere; and the strongest evidence for their correctness is the fact that the French actually have by that means succeeded in reaching that aim to perfection.

It is singular that *precision* and *exactness* in technical productions, which M. Monge had so strongly insisted upon as the chief objects to be aimed at by means of education in France, at the end of last century, are just the very qualities which the Austrian technical products are deficient in, as compared with those of France, although precision and exactitude do not always seem to have been a distinguishing feature of French technical products; and the French workman and manufacturer had also first to acquire those qualifications by training. If, by means of education and instruction, these qualities could be acquired in France to such a degree of perfection, that French accuracy and precision could be held up for a long series of years as an example to the artisans and manufacturers of articles of industry of other European countries, why should it not be possible to achieve the same success, by means of education and instruction, in Austria, Germany, England, etc.?

It is true this requires time and steady and uninterrupted development. Moreover, the foundation laid in France, under the Directorial Government, has been carefully built upon by succeeding Governments, and especially Louis Philippe and Napoleon III. have very much promoted the interests of material culture.

France at the present moment possesses, for all branches of technical industry, the best special schools; large sums are annually voted from the State Treasury for technical and artistical educational objects, and, in

particular, drawing, and designing for technical and industrial pursuits, is encouraged and practised with great care in exceedingly numerous Government, Municipal, and Corporation Schools, so that annually large numbers of intelligent artistically-educated young men are transferred from these munificently endowed institutions to the French workshops. The results of such kinds of educational work became manifest in full display for the first time, to the astonishment of all the world, at the London Industrial Exhibition in 1851, where the productions of all civilised nations were brought together for direct comparison with each other.

Not a single country was in a position, in the department of Art Industry, to compete in the least degree with France—the leader of the fashion—a phenomenon of surprising effect; surprising, in particular, to England, whose imposing productions in all branches of industry, based upon the application of machinery, had betrayed her into self-delusion. In face of such facts, the English Government, as we all know, did not for a moment delay the recognition of the truth, that only by the same road which had led France to the achievement of such a success the power of competition with France could be attained.

The work of organisation began in England, on a very large scale, as early as 1853, with the establishment, in connection with the Board of Trade, of the "Science and Art Department," "as a development of the Department of Practical Art, which, in 1852, had been created for the re-organisation of the Schools of Design." In 1856, the administration of this Department was transferred from the Board of Trade and placed under the direction of the "Committee of Council on Education." Since then, a system of scientific and technical Educational Institutions, commencing from the Art Training School of the South Kensington Museum down to the Elementary Schools, was developed, and to-day the country is provided with a very large number of excellently organised schools and classes of Science and Art; and this branch of education is considered to be of such importance, and so worthy and needful of an enlightened and active support by the Government, that, in the interest of the country and its industry, the otherwise so popular and so strictly guarded traditions of decentralisation and self-government have been departed from; that considerable sums of money for meeting the large expenditure, and for the establishment and maintenance of these schools, are annually granted without opposition by Parliament from the public funds; and that, as previously stated, a separate administrative Central Board was specially created and entrusted with the entire management and the development of this branch of national education.

In the year 1873, England and Scotland possessed already 123 large schools of art, frequented by 22,000 day pupils, belonging to various branches of industry. Besides these educational establishments, there were in the same year in existence 460 art night-classes, attended

by 17,000 pupils, and 2,085 elementary schools, in which 235,000 pupils were taught drawing.

In a few years, the result—unexampled in the history of education and technical instruction—of the measures adopted became manifest in a remarkable revolution in all known relations of production, the revival of old and the establishment of quite new industries; the commencement of the emancipation of England from the dominion of French Art Industry; the gradual dislodgment of the latter, also, from a portion of the foreign markets; and the rise of enormous exports, yielding millions of profit, to all civilised countries of the old and the new world.

Of not less importance have been the exertions of England in the interest of educating her population in those branches of industry, the pursuit of which requires a solid foundation in the knowledge of the mathematical and physical sciences; and the Government seem perfectly alive, likewise, to the importance of these branches. There existed in England, Scotland, and Ireland, in the year 1873, 1396 schools of science, with 4092 classes, and some hundreds of chemical laboratories. In these institutions, 49,605 pupils were in that year instructed in the different branches of mathematical, physical, and technological sciences; and, among these, 2200 in the technical knowledge of architecture and building, 8244 in the technical knowledge of the construction of machinery, 7400 in the technical knowledge of the science of chemistry, etc. A very remarkable circumstance as regards attendance is the fact that much larger numbers, comparatively speaking, attend the classes for the instruction in the fundamental sciences, such as pure mathematics, physics, theory of mechanics, etc., than those in which instruction is given, in the application of these sciences to practical industry. Evidently the industrial classes in England, as well as the Government, are of opinion that the public educational institutions cannot have for their object, so far as the industrial classes are concerned, to compete with the workshops to such an extent as to teach practical labour and handicraft, but that their object consists rather, and principally, in imparting that knowledge and ability which cannot be given nor learned in the workshop. Schools and workshops must supplement each other.

Thus England possesses a system of technical, i.e. science schools, which, in its *pedagogical principles*, corresponds with that organised several years since by the Austrian Educational Department, and the Royal Schools at London, Dublin, and Edinburgh, closely resemble the technical High Schools of Austria and of Germany. And yet these exertions are of the most extensive kind in the middle as well as in the great States of the European Continent. But however important and instructive the above facts and the example of England undoubtedly are for the administration of the Austrian Education Department, they are nevertheless surpassed in importance by what takes place in Germany.

BOHEMIAN TECHNICAL SCHOOLS.

THE Austrian Government taking into consideration the necessity of technical education, and observing that in all the large industrial districts in the north-west of the capital, in the great industrial kingdom of Bohemia, in the whole of the west as far as the river Inn and the Boden See (Lake of Constance), and lastly in the whole territory southwards of Vienna, as far as the Adriatic Gulf, there was not a single technical State school. Taking further into consideration the position of the ratepayers in these territories, covering about 3000 square miles, the extensive Kingdom of Bohemia, which is of such importance to Austrian manufactures and industry, appeared to have the justest claim to be favoured with the establishment of technical State schools, have resolved to place one in the capital of the kingdom, one in the thickly populated industrial districts in the north, and one at a converging point of communication in the west—at PRAGUE, REICHENBERG, and PILSEN.

STAINED GLASS.

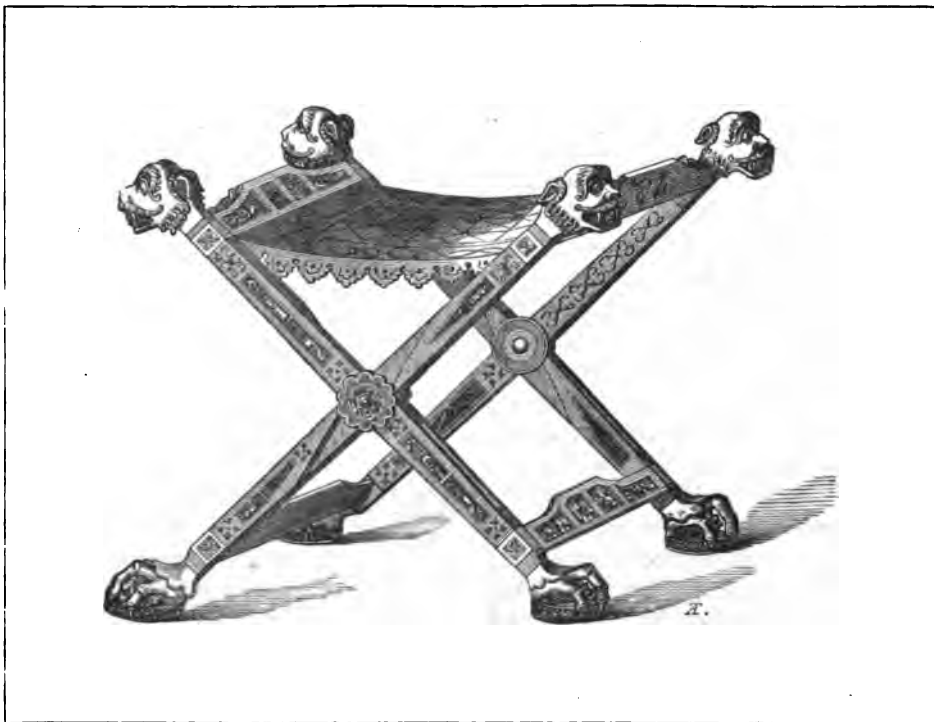
WE figured on page 35, Vol. II., a specimen of stained glass, designed by F. X. Zettler of Munich, which is admittedly pleasant to the eye in composition and colour, but as soon as the impression appeared, we received remonstrances from our artistic friends touching the propriety of introducing into our pages illustrations of what is considered by the initiated as bad in art. Amongst the earliest to notice the work in question was our esteemed friend and contributor, Mr. N. J. Westlake, who wrote to say that the ornamental border used for the centre lights belongs properly to the eleventh century, the foliated corner pieces are of the thirteenth century, the shape of the medallions indicates fourteenth century work, and the drawing of the figures that of the present century, the stone work in which the window is enclosed is properly of the fifteenth century.

We congratulate our readers on having amongst us artists so thoroughly masters of their subject that they can detect at a glance the peculiarities of styles introduced into decorations of modern execution; but the question will naturally occur to some, how far it is legitimate to blend various styles in composite designs, and whether it is more in accordance with good taste to mince up the fragments before they are used, or to leave the morsels sufficiently large for their individual flavour to be detected at the first inspection?

HOWELL AND JAMES AT THE PARIS EXHIBITION.

THE well-known firm of Howell and James of Regent Street makes a more than ordinary display of works of art at the Champ de Mars, consisting mainly of ceramics and horology. A really stately chamber, considering its limited floor space, has been erected from designs furnished by Mr. Louis Day, of Mecklenburgh Square, the architect, who has succeeded admirably in the arrangement of an appropriate receptacle for the display of clocks with other objects of

Spiers, with a fine study of a female head, in which the difficulties of working with the somewhat intractable materials used in china decorations are fairly overcome; the first prize is taken by a floral group, painted with great ability by Mrs. C. A. Lee. The third prize, also having for its subject a floral design, is won by Mrs. McLennon. A study entitled "Amours," a group of infants in various attitudes, by Miss A. Vent, has been very highly commended by the committee of selection, who are perfectly competent to decide on the difficult question of precedence in art culture. Another work, by Mrs. Talbot Coke, is considered worthy of the same notice. Taken as a whole, the exhibition was an improvement in some respects on similar competitions held at the same place in previous years. We look forward, how-



STOOL OF INLAID WOOD AND EMBROIDERED CLOTH, AFTER AN 11TH CENTURY DESIGN.

decorative art workmanship for which this house has of late years become justly renowned. The external walls of this very artistic pavilion, if such a term applied to an uncovered structure made to represent an apartment is allowable, serve for the appropriate display of many of the finest works by English amateurs and others who excel in painting upon china.

Amongst the preliminary exhibition of works intended for the exhibition, we noticed two really fine decorative works by Mrs. Sparks, both of large size, the subjects being figure groups and foliage, painted with a bold and firm hand, the one representing two young people busy upon the construction of cowslip blossom ornaments, the other having for its subject an autumn scene, giving a very charming episode in blackberry picking. The second prize has been carried off this year by Miss

ever, by-and-by to see such vast strides taken by future students in this growing accomplishment, that china painting will be a national characteristic of our higher education for women. In the meantime, there is much profitable teaching to be gained by the observation of really fine works of the same kind, either studies by old masters or by living foreign artists and skilled workmen resident in England. The works of well-known and recognised china painters should be sought out for colour, for subject, for arrangement, and for fitness of elaboration. There is but little to be expected from individual taste, often unaffected by the influences of highly-trained experience. Decoration, to be successful, must submit to certain recognised canons of art, to well defined laws of nature, to intelligent appreciation of what is good and true.

LOCAL ART CLUBS.

THE "Fine Art Revival"—if the term may be used—of the past few years has found a congenial phase of development in the establishment of local art clubs. The necessity of living, which includes dining, has been too long established probably to be now disputed. People who have very little taste for the beautiful in the abstract, but who worship it in women, and speak of it in wine, are willing to be allured, if they can lunch luxuriously, and may even sacrifice themselves in the interests of Art, while they dine with comfort and smoke at their ease. So in the so-called provinces, Guido has been associated with gastronomy, and club society with Cimabue. Birmingham, in virtue of its enterprise, its nearness to London, and its contemptuous indifference to any suggested local inferiority, was the first to launch a fine art club, and the example was quickly followed by the more populous and plutocratic northern towns of Liverpool and Manchester. As everything in Birmingham wears a political aspect, and man is there made rather to agitate than to admire, the art club has degenerated, or ascended, into a political society, where the election returns take the place of Raphael's cartoons, and one is more likely to meet a genial political foe, or the dandy which the Reform Bill gave, when it furnished a bishop to Manchester, than a dreamer on art culture and the æsthetics of the future.

The Liverpool and Manchester clubs have, on the other hand, thriven prosperously. Thanks to the generous and enthusiastic aid of a few discriminating and indiscriminate friends, the institution has taken permanent root, and if the path has been so far proceeded on with pleasure, it is hoped that it may also in the future be pursued with profit. Each town has, in a different and characteristic way, developed an admirable club, where art does something more than excuse indifferent cooking, and where the petty jealousies and childish cliques of country society are merged in the generous enthusiasm of a common pursuit, with an aim that refines and unites, and an end that must be beneficial even where least benevolent. Within the past year, moved by a zealous rivalry, the respective art clubs have held more than one exhibition of works of art, and have hospitably entertained and honoured various distinguished art guests and visitors to their several towns. In both cities, moreover, the novel scheme has been attended with social and pecuniary success. In Liverpool, the design has been laid on the most enterprising and ambitious bases, and periodical exhibitions of artistic objects of every kind—fans and furniture, drawings, lace, Japanese ware, china, etchings, and engravings—have been held, and in some cases prizes have been bestowed on the exhibitors. Characteristically, the Liverpool Art

Club has not limited itself to the encouragement of local artistic skill and genius, but has looked abroad for all that is rich and rare, fantastic, foreign, novel, and strange.

Just as naturally, Manchester has devoted itself to the encouragement and development of the resources of local artistic production and skill. The club has held two or three charming exhibitions of the works of painters who, by accident or birth, or local residence, have been in some manner associated with the town. It has honoured itself, and the artists it has delighted to honour, by the selection, approval, and exhibition of their works, and by the publication of artistically conceived illustrated catalogues of the various contributions. But the respective clubs are not placed in apposition, for the purpose of making invidious comparisons. The enterprise each has undertaken is practically illimitable, and the parallel lines may run on for ever without meeting. The rivalry they have entered on is too generous to create jealousy, while each has something to learn and much more to pursue. In the patronage and aid of Mr. Bowes, Mr. Rathbone, and other friends equally enthusiastic and affluent, Liverpool may and ought to accomplish something worthy of the town which gave birth to Roscoe, and which has been at various times honoured by association with the names of some most distinguished artists, although it has very little identified itself with their struggles or their success. Among the committee are collectors of rare taste and discrimination, and it is hoped that the career of the club in the future will be not less prosperous, and that it will increase as rapidly, entertain as hospitably, and exhibit as successfully as it has during its limited existence.

The scope of this brief notice is, however, rather to suggest that something has yet to be achieved in both towns in methodising the objects and pursuits for which these clubs have been undertaken. It must not be forgotten that if Art is heaven born, and leapt into the arena of life ready armed, the divine maid was scientifically equipped. Order and method, system and science, are all equally by Pallas represented. No exception can be taken to the path chosen by the Manchester Fine Art Club in encouraging and stimulating its local genius. It is a happy purpose that must prosper, pursued in any way. But Manchester may devote itself not unbecomingly to the arts of design, and there are other phases of art culture than those which are represented by expensive drawings and approved paintings in oil. Considerable attention has been bestowed of late years on the improvement of the public edifices, and in the general taste manifested in furniture and the arts of domestic life; but much has still to be done. Manchester moreover aspires, and aspires not ignobly, to local and civic life. She has antecedents and a history. The social, political, and artistic grandeur of the Italian and Flemish cities of the middle ages are not beyond her ambitions or her hopes. Liverpool has been at some disadvantage in this respect. It is a port, not a city. Its

inhabitants are travellers. It has little or no social or civic identity, and no history. But it has considerable wealth, and in the happy association of affluence with art, it may accomplish much. Its position as the first seaport in the world is in itself a vast responsibility. It has duties commensurate with its dignity. By its exhibitions it may promote a more vigorous and censorious criticism on our manufactures and articles of export, whether objects primarily only of utility or comfort, and not of beauty. It may aid in repressing the vulgar designs, the unfitness, the tasteless and bizarre productions of many of our native manufactures. By exhibitions of the best periods of tasteful production, and of the best ages of art culture, it may do something to check the downward progress of a vulgar and meretricious age. It may be said

that the consumer and producer are always sympathetic, and that "those who live to please, must please to live;" but this is only partially true. The best productions, in all ages and countries, have found appreciative admirers and buyers. Beauty is no foe to utility. On the contrary, the highest utility and the most exalted beauty are in nature found wedded, and it may be assumed that nothing will be perfect which has not excellence of design as its motive, and that there is no perfection that is not crowned by beauty. If the fervour of selection is honoured, the zeal of rejection must not be contemned, and those who work wisely will also plan thoughtfully, pursue soberly, and erect solidly, rather than with that haste which is without method, and which covers absence of design by the semblance of display.



COFFER OF EBONY AND IVORY, BY BATTISTA GATTI, ROME. 16TH CENTURY WORK.

JAPANESE ART.

"WHAT is the aim of Japanese Art?" was the question asked, and the answer was as follows — "The aim of Japanese Art is to give great effect with few lines and little labour."

This seems to us in a single sentence an excellent definition of a style of decoration which is justly popular, for it is the outcome of a careful study of nature, resulting in truth of form and facility of drawing. Truth and simplicity, grace and harmony, are alike characteristics of the work sent out by the untutored native of Japan, who,

with an intuitive sense of the beautiful, furnishes models for artistic decoration far surpassing in many respects the more elaborate and theoretic efforts of our boasted Schools of Art.

It has frequently been remarked that Western civilisation has an unhealthy effect upon the original art, instead of Eastern nations; the increased demand and the insufficient supply of good work furnishes an opportunity for the sale of that which is inferior, whilst the introduction of our mineral dyes affords ample facilities for destroying their former harmonies of colours. It has been whispered, too, that Japanese Art has also suffered from this cause of late years; this may be the case, but the good which it has already worked is untold, and we venture to predict, that even should it lose its pristine purity of form, and

should its lovely combinations of colour merge into such coarse and crude results as occasionally crown the efforts of our British workmen, yet its influence on English decorative industry will survive it and infuse fresh vigour into the taste of a rising generation. We might even go further, and say that if Japanese decorative art should not prove to be the popular art of the future, at least it is the forerunner of that which is still in its infancy.

In an age of great luxury and unparalleled activity the over-busy mind yearns for the beauty of nature, although its æsthetic tendencies may not have been strained to appreciate the stiff conventionality of medievalism, nor the classical regularity of Italian scrolls. To such the exquisite simplicity, truth and originality of Japanese art commends itself; it comes to them ready made to supply the want they feel; it strikes them forcibly that there is in it a beauty which delights them and which they need be at no pains to discover. These working bees are those who exert such a deeply-felt influence on all art manufactures through their patronage, and therefore what satisfies them must become a ruling power in art decoration, even if uncommended by the artistic few; yet from the latter, too, Japanese art receives full support.

For every reason already quoted, Japanese designs are especially adapted for needlework, a fact which has been speedily recognised and promptly acted upon by Messrs. Pearsall, Hextall, and Co., of 134, Cheapside, who, whilst supplying various other kinds of excellent art needlework, have expended much care and cost upon the Japanese element. The work referred to may be seen in most of the shops at the West-end of our metropolis, as well as in our principal provincial towns, and may be recognised without difficulty, from the trade-mark with which it is stamped at the back of each article. It is not our intention to speak here of the merits of this work in various styles, we merely mention it as pertinent to our subject, especially as Art needlework promises to monopolise a large share in the adornment of our homes, a circumstance which we cannot well overrate, inasmuch as it affords suitable employment for the fair sex which is far more in keeping with their physical and mental capacities than the lecture-hall or the hustings.

The ordinary Japanese forms for design are not great in number, yet they constantly recur in great and endless variety, and always with fresh and pleasing novelty of combination.

In praising this particular style of art we do not wish to disparage other specimens, although we think that being less simple they are more apt to become meretricious. The art we have chosen to discuss is perhaps the more artistic, inasmuch as the feeling with which it is impregnated does not obtrude itself upon our senses, but leaves us convinced that the unknown draughtsman felt in his heart that which his ears had never heard—"Artis est celare artem."

Coming straight from nature, the fountain-head of all good design, it is perhaps one of the chief reasons why it impresses us with a freshness which we seek for in vain amongst other schools, and for this reason we give it in favour of the art which gives great effect with few lines and little labour.

"FOREIGN COMPETITION."

TURNING over the pages of that admirably conducted, and therefore most popular journal, *Financial Opinion*, we noticed amidst the multitude of facts of the highest importance to investors, capitalists, and statesmen everywhere, an article so appropriate, that we feel no manner of scruple in transferring it bodily to our own columns. The writer commences by saying:

"It must be admitted that the paradoxical saying, 'An Englishman is never happy save when he is miserable,' expresses in an impossible form a certain truth. No people are so fond of abusing themselves as we, and we never appear so thoroughly satisfied as when we can persuade ourselves that we are going to the dogs either politically, commercially, or morally, or, peradventure, all these three ways at once. We develop bogeys from our own consciousness; and, however often they are laid, be sure they will turn up again, after a decent interval, as lively and, to all appearance, as formidable as ever. The bogey with which we are most occupying ourselves just now is foreign competition. It is remarkable that this bogey is the invariable concomitant of bad trade. When the country is in flourishing circumstances, we never hear a word about him; but the moment demand begins to slacken and our exports to fall off, our numerous Job's comforters set to work to prove that the last hour of England's commercial and manufacturing superiority has struck, and that ruin is staring us in the face. It does not at all impair the confidence of these prophets of evil in their views that every other country in the civilised world is in as bad a plight as ourselves, or that, while we are being scourged with whips, most of our competitors are being scourged with scorpions. If the facts are against them, *tant pis pour les faits*. And the supposed facts upon which some of our mentors base their opinions are often as illusory as their inductions are illogical. I was rather struck the other day with a statement in a morning paper that a Member of Parliament had been explaining at a meeting of his constituents why English workmen are inferior to the workmen of Germany and Switzerland. One did not need to read through the honourable gentleman's speech in order to ascertain his sentiments on this subject—they were neither novel nor original. Defective education was of course taken to be

the cause of this assumed inferiority. Only, it is affirmed, give the British operative an efficient knowledge of reading, writing, and arithmetic, and you will raise him to the level of his Continental rival. I demur equally to the premises and the conclusion. I deny that English workmen are inferior to those of Germany and Switzerland; and I am not prepared to admit that the better educated individual is necessarily the better craftsman. It has been shown, and I can give chapter and verse for it, that it costs thrice as much to build a house in Zurich as in London, the price of materials being the same in both places, and the difference in wages insignificant—a circumstance principally, if not solely, attributable to the greater efficiency of English labour, and the superior enterprise of English builders. Cotton spinning in

people; and when the latter are constrained by stern necessity to consume fewer home productions, it is scarcely to be expected that their takings from us should not show a notable falling-off.

“Touching the supposed better education of some foreign craftsmen, I confess to some scepticism as to the much vaunted influence of mere book knowledge—ability to read and write—on the efficiency of ordinary and even skilled labour. Instruction in the public schools is compulsory in Germany and Switzerland, and it remains to be proved that Swiss and German workmen are better than those of France. I rather think the reverse is the case. Italy is probably one of the worst educated countries in Christendom. In respect to the ignorance of its people, it yields only to Russia, yet Italian workmen,



SPECIMEN OF WOVEN FABRIC, FROM JAVA.

Saxony, once a flourishing business, has been literally destroyed by British competition, and, save in a few special products, foreign manufacturers are utterly unable to compete with us in neutral markets. As to the falling off in our exports of cotton goods to Continental markets, which is supposed to prove that our neighbours are clothing themselves with the produce of their own looms to a greater extent than ever before, is it not quite as likely that they are using less material all round, and that the diminution in question is quite as much owing to lessened consumption as to successful competition? Business has been, and is yet, even worse on the Continent than in this country, which is simply another way of saying that Continental manufacturers are in a worse position than our own—a circumstance that can only arise from the curtailed buying capacity of their own

especially Italian masons, swarm all over Switzerland and Germany, and beat the native artisans of those countries on the latter's own ground. It was stated a few days since in a Swiss paper that ten per cent. of the workmen now actually employed in Switzerland are Italians. Italian masons find their way as far north as Berlin and Dresden. There is scarcely an important city in Germany in which the finer kinds of stonework are not done by craftsmen from the north of Italy. In Saxony they are extensively employed in the construction of all public buildings, and the present writer knows of a recent case at Zurich—and it is by no means an isolated one—in which it was stipulated by the builder of some houses that none but Italian masons should be employed on the job. These men are not worse paid than the indigenous article; on the contrary, they com-

mand considerably higher wages than their German and Swiss competitors—first of all, because they are actually more skilful in their calling; next, on account of their greater sobriety and trustworthiness. They are, it is almost superfluous to remark, for the greater part Piedmontese, the Romans and Neapolitans of these days not being much addicted to crossing the Alps in search of work—a commodity of which they do not seem to be particularly fond. But this circumstance does not affect the contention that the training given in popular schools does not *necessarily* make those on whom it is bestowed superior workmen, and it by no means follows, because British operatives are not so well educated as those of some other countries, that they are less efficient as operatives. On general grounds it is certainly desirable that the people should be educated, but great popular measures are apt to be disappointing in their results, and those who put their trust in education as a certain means of enabling England to set foreign competition at defiance are probably counting without their host. If that were all we had to depend upon, we should have a very poor chance of surviving the struggle; for, as touching a competent acquaintance with the three R's, Germany, Switzerland, and the United States have got a tremendous start of us.

"The antiquity of the foreign competition Bogey is no less remarkable than his vitality; our grandfathers knew him well, and he was quite a public character when George III. was king, a circumstance which probably explains the favour with which he is still regarded by many admirers of our ancient institutions. The other day, in turning over the pages of an old, and long since defunct, magazine called the *Chronicle of the Times*, published at Manchester, I happened on a rather remarkable letter from a correspondent, signed 'Viator,' and headed, 'Crippled State of British Commerce and Manufactures.' Though this letter is dated May 3rd, 1815, it might easily, with little alteration, be expanded into a leader for a paper of to-day, or be made to serve as text for an extra-parliamentary speech. The writer begins his communication by remarking that peace has not brought prosperity and plenty. 'Perhaps,' he says, 'during no equal period of the late struggle has the loom or spindle been so inactive, as since the 30th of April, 1814, when the peace of Europe was supposed to have been sealed for generations.' Viator attributes this deplorable state of things chiefly to 'the policy of the French ruler, whose gigantic power enabled him to exclude from the continent of Europe our manufactures, when the people, from want of our goods, put in requisition all their exertions and ingenuity; and in districts which had formerly been altogether dependent on British labour, establishments were formed which, in some degree at least, supplied their wants. The high price of labour and provisions, compared with that of other nations, is also an unfavourable circumstance to British commerce. If, in one country, the necessities and conveniences of life be dearer than the like necessities and conveniences are in any other country, though they be equally curious and

parsimonious there, the masters must have higher profits and the workmen higher wages than in any other country, and, consequently, their manufactures must be dearer than the like manufactures of any other country, except, indeed, they possess some advantages by the reduction (economy?) of human labour. Now, the latter was the powerful lever which heretofore has given to Great Britain her decided pre-eminence over all other nations with regard to commerce. Her exquisite machinery, so long as she possessed it exclusively, bid defiance to competition; but our Continental neighbours and Transatlantic friends have now their machinery also, and although not perhaps in the same state of perfection, are advancing with rapid strides to overtake us. This is one material cause of our commercial distress, and of the success the French and others have lately met with.'

"Evidently Viator was in real earnest, and his faith in the Bogey of sixty-four years since was at least as great as the faith of our present Jeremiahs in their Bogey. And we know how utterly wrong he was. It seems to be too often overlooked that the commercial and manufacturing supremacy of England and Scotland is due mainly to certain natural causes—their geographical situation, climate, mineral resources, the 'silver streak of sea' which acts as 'a moat defensive,' and the spirit of their people. When these, or any of them, begin to fail us, we shall assuredly lag behind in the race; but until that fatal moment arrives we may at least count on holding our own. It is even conceivable that the future has triumphs in store for our pioneers of commerce and captains of commerce greater than any they have yet achieved, and this hope might be justified by arguments undeniably more patent than those which have been used to revive the Bogey of foreign competition."

THE LOAN EXHIBITION OF CINCINNATI, 1878.

THE tendency of the age to promote genuine appreciation of art knowledge can have no finer illustration than that presented by the Women's Art Museum Association of America, in its most recent display of art industry. The association has been most successful since its formation; the money raised by means of the occasional exhibition entrance fees goes towards the increase of the Art Museum Fund, after all the incidental expenses of each meeting have been defrayed. The committee point to the fact, that whilst the European governments foster such national exhibitions by the aid of public funds, in America individuals and communities become the originators, contributors, and ultimate founders of such educational appliances as are to be found in local per-

manent museums and training schools, and in the large loan collections of the principal American cities, the result of all these efforts being the improved culture of American designers, whose work at the present time compares favourably with the best European productions. The century of her national life America can now boast of having attained to, finds her in possession of riches sufficient to justify her people in making advancement in the Industrial Arts to which, in her early days, she had neither the time nor the inclination to give attention.

We quote from the ladies' report of the Art Museum Association of Cincinnati.

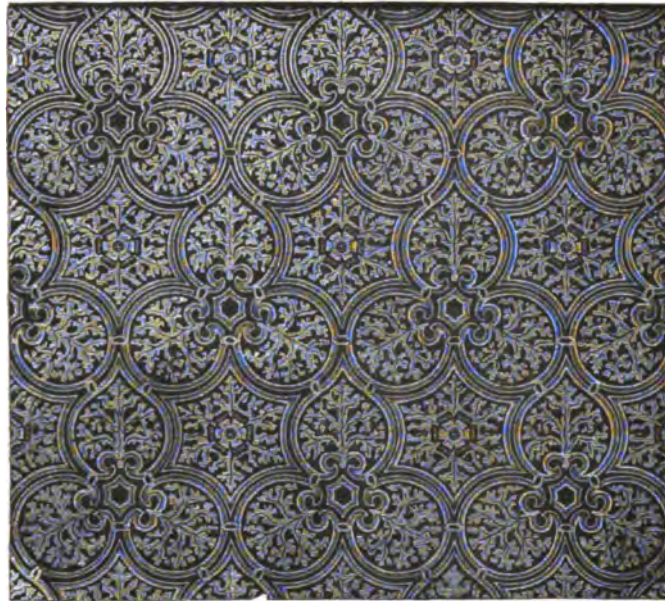
"In April, 1870, the 'Metropolitan Museum of Art,' of New York, was incorporated. A year later the sum of

the close of the Exposition—was secured for the purposes of the museum.

"The question naturally arises whether Cincinnati shall not add to the advantages already possessed by her, the nucleus of a museum and school which shall eventually aid in doing for the industries of Ohio and of this city what the South Kensington Museum and Schools have done for England.

"A museum alone, it is thought by those who have given most attention to the subject, would fail to accomplish the object. However richly endowed, it would be but a show without the training schools which should accompany it.

"In Cincinnati we have drawing-classes in the public



DESIGN FOR PAINTED FLOOR-CLOTH OF CORTICINE OR KAMPTULICON.

\$500,000 was granted by the State for the erection of a building 'to be located in Central Park, or on other public ground.'

"The impulse which resulted in the 'Pennsylvania Museum and School of Industrial Art' is said to have been inspired by the near approach of the International Exhibition.

"An association was formed and incorporated on the plan of the institution at South Kensington, for the development of the art industries of Pennsylvania. A considerable sum of money was devoted to the purchase of master-pieces of fine and industrial art at the Exposition, and the use of Memorial Hall in Fairmount Park—after

schools, and we have our School of Design, but without a collection such as a museum would bring together, they are only a part of a scheme of education, and lose a great portion of their efficiency.

"Aside from other considerations, perhaps no class of the community will be more benefited than women by opportunities of thorough education in industrial art.

"At South Kensington there are said to be more women than men among the pupils, and it is also said by Professor Walter Smith, formerly of that school, now Art Director of Massachusetts, that their success is greater than that of the male students. Miss Barlow's etchings on the Dalton stone-ware, stamped it as the costliest in the collection at

our 'Centennial,' and some of the exquisite designing and painting on the Lambeth faience and tiles was the work of women, pupils of the art schools of England.

"The work of women in this country is also being advanced, slowly but surely, in the same direction. The exhibits of their work at the Centennial Exposition from the 'Cooper Institute,' New York; the 'Lowell Free Industrial School,' Massachusetts; the 'Institute of Technology,' Massachusetts; the 'Pittsburg School of Design,' and other similar institutions, formed a most interesting revelation of the opportunities which are being opened to women by these Technical Art Schools. The specimens of designs for calico printing, oil cloths, carpets, ribbons, lace, and wall paper, with copies of casts, architectural drawings, etc., were not inferior, so far as they went, to the exhibit from the South Kensington school, which was largely displayed.

"In our own city the School of Design has been instrumental in awakening a desire for further educational facilities; but it is limited in its usefulness by want of means. At the present time there are upwards of seventy applicants awaiting vacancies in the Department of Drawing alone. The speciality of china painting might be mentioned as an art industry of increasing interest among us. What has been done in that direction thus far is scarcely more than an expression of the latent taste of some of our women, for its development has been almost wholly without opportunity for training. As a social and domestic influence we are not in danger, perhaps, of estimating too highly culture in such directions.

"A quarter of a century ago manufacturers in England paid large sums annually to foreign artists for designs. At the present day a large part of the commercial value of her manufactures is the direct result of her own industrial and fine art museums and training schools. So marked was the advance made by England between the Exhibition of 1851 and that of 1862, in the artistic quality of her industries, that French manufacturers, it is said, were led to fear that their own industrial art supremacy was endangered.

"The United States is probably destined to make more rapid strides in the same direction. Drawing in our public schools, and Schools of Design in a number of the larger cities, is the beginning of the preparation.

"The interest felt in this subject by members of the late Centennial Committee of Cincinnati, incident to the work then undertaken, was extended and deepened by the attention they gave it, and the information they acquired. Many of them visited the Exposition at Philadelphia, and were greatly impressed, not only with the range of the subject to which they had been giving attention, but with its practical and important relations to other subjects of recognised gravity. They also became conscious of a more extended sympathy and more interested inquiry among the women of Cincinnati than they had before known. Since the Exposition has passed, the impulse has not shown signs of dying out, but rather of

renewed vitality. The results, not inconsiderable, accomplished by the late Centennial Committee in connection with their growing interest in the general subject, and their knowledge of interest felt in it by others, reinforced, perhaps, by experience of the pleasure of an association which has proved so agreeable to themselves, have led them to inquire whether or not they would necessarily fail in an attempt to aid in the development of a liberal impulse so pleasant and so useful to all home interests, and whether a much larger number of the women of Cincinnati might not be enlisted.

"The history of similar impulses elsewhere shows a nearly uniform growth, until they result in museums and training schools.

"Our proposed organisation, if one should be made, must, I conceive, be measurably aimless, or aim at that result. This conclusion presents the difficulties in a light so formidable that we may fairly weigh them."

The loan collection at Cincinnati is of such varied character, that it proves how universal is the taste, how ample are the means, how liberal the feeling on the part of the owners of the property lent for the display. A gentleman has placed his elegant and spacious house at the disposal of the committee, and the neighbours contributed on loan such treasures as the committee saw fit to select for the purpose out of the many elegant objects contained in the many private collections to which they had access.

A clever attempt has been made at classification, as far as classification was possible in so varied an accumulation.

This classification applies more strictly to the pottery, which is sufficiently abundant to include within it specimens of every type of the art, from the exhumed Phœnician and Greek pottery, dating back 2000 years, down through the centuries, to the most refined examples which have their counterparts in the Paris Exhibition this year. Iron-work of the sixteenth century, lace of the fifteenth, glass from ancient and modern Venice, Chinese and Japanese porcelain, lacquers and enamels of every age, together with specimens of the various finer industries of Europe and Asia, for which certain manufactories have been famous for the last two centuries.

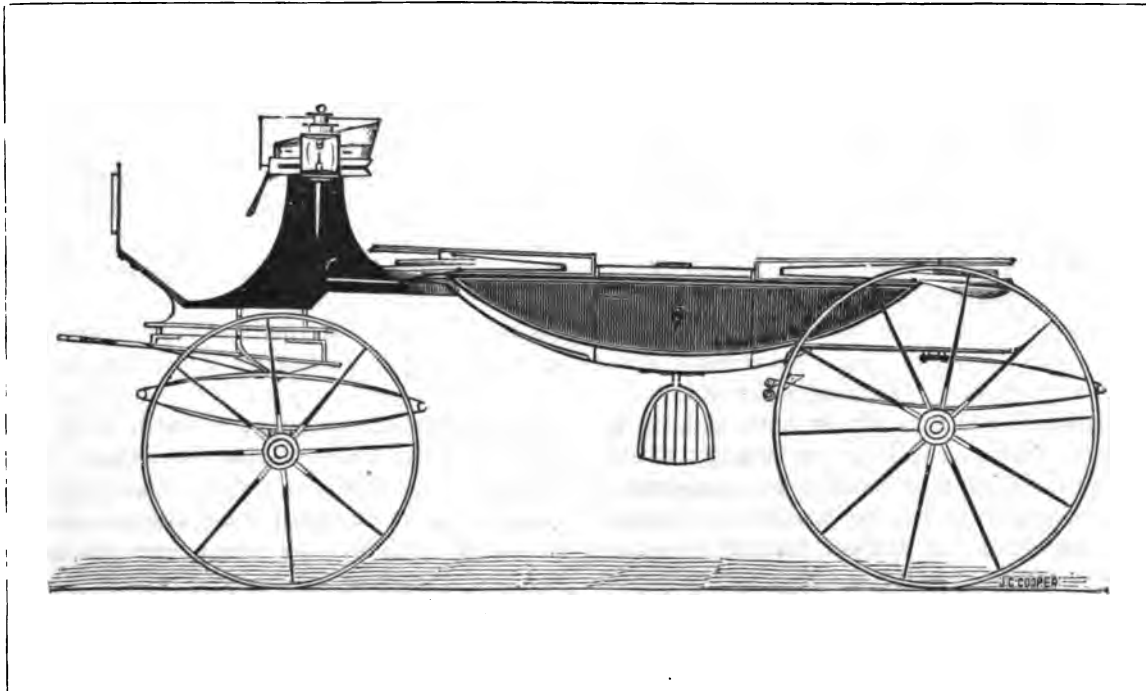
The collection has been drawn, as we have said, exclusively from the residents of Cincinnati and its suburbs, no public collection or museum having contributed any object to it. Its richness and scope are a surprise to those who have prepared it. Since its formation it has revealed the knowledge and taste which quietly and unostentatiously pervade the homes of the city. Along with the beautiful works of classic art, the plainer examples of a less ostentatious period, and the most exquisite types of modern manufactures, there is a small display of etchings, designs, models and wood-carvings, sent in by the pupils of the Local School of Design, with sundry examples of water-colour drawings and paintings on china by amateurs, which not only attract much

attention, but give promise of a future for Industrial Art in America of which we in Europe have no conception.

To return to the pottery at this display, we find it divided into sections with admirable skill, just as many specimens being selected as will amply illustrate each group; the catalogue giving in the smallest possible space enough information to interest the curious, and at the same time to satisfy the specialist with the completeness of each. Beginning with ancient Græco-Roman vases brought from the Tombs of Etruria and Magna Græcia, the section contains specimens of vases, pitchers, cups, lachrymatories, and lamps, and some personal ornaments. These amply illustrate the period. The specimens, it may be remarked, are contributed by several collectors, showing how wide-spread is the taste for classic records amongst our trans-Atlantic friends. Coming down to the

of wares illustrating, with the materials at the disposal of the committee, all the facts in the history of the art of glaze, flux, and decoration, even to recent times, including Flaxman with Wedgwood to Miss Barlow, with Doulton ware.

Then comes case after case containing Old Berlin, Old Sèvres, Hungarian, Bohemian, Worcester, Swiss, Frankenthal, Vienna, Dresden, Lowestoft, Derby, etc.; then comes china of local or historical interest, glass ancient and modern, and figures, plaques, and other artistic objects which are less capable of systematic arrangement, but which tend with pictures, statues, and models to give diversity to the chambers where these things are displayed. It is possible to learn many important facts from this rich display, which might be accepted with considerable advantage by our own



IMPROVED LANDAU, BY MESSRS. R. HARRISON AND SON, AT THE PARIS EXHIBITION.

eighth century, the show of Maiolica pottery is very fair. Ancient Japanese cloisonne and Indian vases of early date complete this elegant section.

The Flemish and German stoneware is well represented: Holland, Cologne, Nürnberg, Ratisbon, Baireuth, and Mansfeld, with the districts of the Lower Rhine, where the finest clays for the purpose of the potter's art are abundant.

The close of the fifteenth century terminates the best period of German art; the revival of the Grès de Flandres of the seventeenth century marks a period of its revival. In the next case, the Chinese and Japanese pottery and porcelain is well represented, some of the specimens being priceless in value. Then comes ancient and modern British pottery, including Celtic, Roman, Saxon, and early Norman pottery, an instructive series

friends who contemplate undertakings of a like kind. Evidently, to begin with, a private house of suitable dimensions is better than a public school-room or ordinary place of exhibition; next, the committee should have the right of selection, whilst a large number of independent contributors insures a better result than when the specimens are drawn from the museums of one or two known collectors. The object of the committee being a legitimate one, is sure to command the success of a local exhibition of works of art, such, as we are informed, has attended the admirable efforts of our Cincinnati friends.



THE ANNUAL REPORT OF THE DEPUTY MASTER OF THE MINT.

LAST year it was our pleasing duty to draw attention to the able contribution to the Literature of Industrial Art, contributed by the Hon. C. W. Freemantle, Deputy-Master of the Mint, in that portion of his statement to Parliament bearing directly upon the subject of the Portraiture of Coins, which had the effect of raising what might otherwise be considered a dull financial statement to a foremost rank in the literary contributions of the year. The work was accompanied by illustrations of the most refined character, which, to the eyes of the numismatist, as well as in the opinion of the least cultivated observer, had a charm peculiarly their own. On the present occasion, we are equally interested in the labours of the Mint department for two reasons, the one arising from the fact that there is a new process for producing dies.

Mr. Freemantle says :

"In the month of September my attention was directed to what was represented to be a new process for producing dies. The process was stated to differ essentially from that now employed, and, as it had been acquired by several foreign Governments, I obtained their Lordships' permission to visit, with the Chemist of the Mint, certain European Mints in which experiments with a view to its permanent adoption were in progress.

"The main reason urged for its acquisition by this country was that dies could by its aid be produced more rapidly, and would be more durable, than those now in use. The sum demanded by the inventor was, however, largely in excess of that which I ascertained to have been paid for it by other Governments, and, as pointed out by Mr. Roberts in a report on the subject, it is not at present possible in this Mint to estimate the value of the process on the basis of increased durability of dies, because it is uncertain to what extent the molecular structure of the dies now in use is impaired by the ponderous presses still retained here. Another instance, it may be remarked, is thus afforded of the way in which progress is arrested by the obsolete machinery of the Department. It also appeared that, although the details of the process are secret, the principles upon which it is based are well known, and were practised by die-sinkers in the last century.

"As under these circumstances I was not in a position to ascertain the probable value of the secret, I was unable to recommend that a large sum should be expended in acquiring it. If, however, the process should be permanently adopted by Continental Mints, the results will be communicated to me, and it may become my duty to make a further recommendation to their Lordships on the subject."

The second and more deeply interesting section of the

report, which bears directly on another feature of technical detail in the coinage is in continuation of the subject investigated in the previous report.

The Deputy-Master says :

"The question of the general design of coins is far more complicated than that of portraiture, which was treated at some length in my last Report. To deal with it satisfactorily would require a closer examination of artistic detail than could be entered upon in a Report of this nature ; but the subject is of so much interest and importance, that I propose briefly to set forth such facts in connection with it as will serve to show the phases through which decorative art as applied to coinage has passed in ancient and modern times.

"It is well known that the impressions on the reverse of very early coins were produced by the rough surface of the anvil, or by the nail-head, on which they were placed while the obverse was struck with the coining-tool or die. Subsequently, indentations were formed by points of metal arranged in a geometrical form, and these eventually gave place to designs from engraved dies. So far as this country is concerned, it may be well to dismiss the consideration of the more primitive forms by a reference to the gradual evolution of design on early British coins from antecedent types. Mr. John Evans, F.R.S., has shown that the prototype of the British series is the gold 'stater' of Philip of Macedon, a perfectly finished Greek coin, which was so crudely imitated by successive native copyists that ultimately the wreath round the head of the monarch alone survived, and was sometimes arranged in the form of a cross.

"The fact that the art of die-sinking was practised by but comparatively few individuals has led to persistence in traditional designs, and coins have not, therefore, always been faithful exponents of contemporary art. In other words, changes of design have at times been less rapid and distinct in the case of coins than in the case of architecture and painting. It may be convenient, however, to consider numismatic art under the familiar divisions of Classical, Gothic, Renaissance, and Modern.

"A superficial acquaintance with Greek coins is sufficient to show that their treatment is sculptural. They have, in fact, been taken by Mr. Poole, Keeper of Coins and Medals at the British Museum, and by Mr. Ruskin, to illustrate whole phases of Greek art, particularly sculpture ; and Mr. Poole has shown with great clearness what are the different schools into which Greek art as applied to coins may be subdivided, and what are the distinctive characteristics of each. Mr. Ruskin divides the nine centuries of Greek art before the Christian era into three groups of three centuries each, which he calls the archaic, the best, and the corrupt, and

gives as an example of the best period a head of Hermes, the treatment of which is marked by 'extreme simplicity, unpretending vigour of work, which claims no admiration either for minuteness or dexterity, and suggests no idea of effort at all.' I have chosen the coin figured No. 1 in the plate, which represents the struggle of Hercules with the Nemean lion, because, as Mr. Ruskin points out, it is very characteristic of Greek work. In it, he says, there is not the 'slightest effort to represent the agony of contest, . . . the whole interest being in the beauty or rightness of form, . . . as a Greek never expresses momentary passion.' No. 2 in the plate is a coin of Elis bearing a figure of Victory, from which was taken the design for the Waterloo medal. Side by side with these is placed (No. 3) the well-known design of St. George and the Dragon, by Pistrucci, in order to show how purely classical the works of this great artist were.

"The influence of classical art on the British coinage is most evident in the early British series; in the modern copper and bronze coinages, the reverse of which was probably designed from a Roman medallion of Commodus, too large to be shown in the plate; and in the works of Pistrucci, of which a specimen has been given.

"From Saxon times to the present day certain coins have borne a design the gradual development of which it is interesting to trace. No. 4 in the plate, a penny of Ethelred II., bears a grooved cross along which the coin could be divided into four parts. The reverse of the penny of William I. (No. 5) is a simple cross surrounded by rough lettering. In No. 6, the groat of Edward III., the angles formed by the cross, which extends to the edge of the coin, are filled with pellets. In No. 7, the shilling of Henry VII., the pellets are replaced by the arms of England and France arranged quarterly. In No. 8, the shilling of Charles II., the arms occupy nearly the whole field and almost obliterate the cross. In No. 9, the half-crown of Charles II., the quarterings of the arms are themselves arranged in the shape of a cross, alternately with the Royal cypher, and in the florin of the present reign (No. 10) this arrangement of the arms still survives.

"The British series embodies other types, well represented by Nos. 13 and 21, which are eminently Gothic in treatment. The 'noble' bears the image of the ship, and, as Ruding says, 'was thus remarkably distinguished from every other coin at that time existing.' The 'angel' of Henry VII. bears the design of St. Michael contending with the dragon, and is one of the numerous instances in which figures of saints are found on Gothic coins.

"Viewed as a whole, the Gothic series of British coins presents many points of interest, and perhaps the most important conclusion to which a study of them leads is the imperfect way in which they represent Gothic art at the periods at which they were struck. For instance, the groat of Edward III., No. 6 in the plate, though

simply and effectively designed, shows none of the rich treatment which marks the great seal of that king; and the delicate tracery and ornament which abound in the illuminated MSS., the architectural details, and the stained glass, of the period find but imperfect equivalents on the coins. This is the more remarkable, as the privilege of striking coins was exercised in a great measure by ecclesiastics, under whom art flourished, and who may be presumed therefore to have had at their command the materials for making the best possible designs. Occasionally, it is true, characteristic details may be recognised which there is no difficulty in referring to a distinct phase of Gothic treatment. Such, for instance, are the canopies and furniture of the thrones, and the device on the crown of Henry VIII. (No. 15 in the plate), which is frequently used in decorative work of the sixteenth century. The heraldic treatment of many of the coins of Elizabeth, also, offer distinct examples of the ornament characteristic of her reign; and a remarkable instance of the interlaced pattern peculiar to the Saxon and Irish art of the eighth and ninth centuries is to be found in some of the coins of Offa, one of which is given (No. 11) in the plate. But it must nevertheless be admitted that the designs of the whole series, though often beautiful, do not, so far as this country is concerned, adequately represent contemporary art. The reason would appear to be that very many of the coins were copied directly from French examples, and that types survived to a later date. Thus, to select but a few cases, the reverse of the 'masse' of Philippe le Hardi survived almost unchanged in that of the 'mouton d'or' of Edward III. (No. 14 in the plate), which was in circulation a hundred years afterwards; and the 'gros Tournois' of Philip le Bel, No. 12 in the plate, survives in the 'gros' of Henry IV. of England, who reigned more than a century later. In the florin, struck in 1850, No. 10 in the plate, the ancient arrangement of the Royal coat of arms is retained, while the general effect of the design at once suggests the phase of Gothic ornament which was in fashion at the time.

"Heraldic devices, as might be expected, offer abundant scope for treatment as designs for reverses of coins. In a coin of Frederick William, Elector of Brandenburg in 1640, a shield with supporters, bearing twenty-six quarterings and nine crested helmets, is introduced. Of the examples given, No. 19 is a fine but simple treatment of the arms of Ferdinand and Isabella of Spain. No. 18, a coin of Sigismund of Austria, bears, as is often the case, an equestrian figure. No. 25 shows how the arms of the Medici family were arranged, in Renaissance times, by Cellini, and No. 17 is the 'broad' of Cromwell. The design of the last-named coin is by Simon, and it is to be noted how little this great artist availed himself of the opportunity, afforded to him by a complete change of design at this period, to introduce a really artistic reverse. The Royal cypher or monogram was often the main feature of the reverse of coins, as is shown in the ducat of

Christian V. of Denmark given (No. 26) in the plate. In Nos. 27 and 28, shillings of George III. and George IV., two specimens are given of the heraldic treatment applied to coins in the earlier part of the present century.

"It will be readily admitted that the Renaissance was the period most fruitful in designs as beautiful as they were well suited for the purposes of coinage. It is easy to recognise in numismatic art, as in all other arts, the superiority of the fifteenth century, which was followed by a universal decline, from which the nineteenth century, in spite of many earnest efforts, has by no means recovered. The relation of Greek to Renaissance art has been well expressed by Mr. J. A. Symonds in a recent work, and, as his remarks are specially applicable to coins, I cannot do better than quote him at some length. He points out that 'it has been granted only to two nations, the Greeks and the Italians, and to the latter only at the time of the Renaissance, to invest every phase and variety of intellectual energy with the form of art. . . . If the methods of science may be truly said to regulate our modes of thinking at the present time, it is no less true that, during the Renaissance, art exercised a like controlling influence.' The difference between Greek and Renaissance art is easily defined. It has been shown above that the treatment of Greek coins was in the main sculptural, whereas the designs on Italian coins of the thirteenth and two following centuries may be considered to be essentially pictorial. The reason for this difference would appear to be that sculpture suited the requirements of Greek thought, which demanded the highest excellence and beauty in the delineation of physical proportions, while on the other hand the tendency of the religious thought of the middle ages could only be adequately expressed by the more subtle and varied means afforded by painting. There is no doubt that the Renaissance was at first a revival of classic art, and I regret that it has been impossible to find a coin by Niccolò Pisano, who was the first to combine the study of the antique with that of nature. Many examples might, however, be given of the masters of the Renaissance, and three have been selected as good illustrations of the fine work of this period. The first, No. 22, is by Francia, and is of special interest as having been struck at a time when Renaissance art, so far as painting is concerned, may be considered to have culminated. Nos. 23 and 24 are both by Cellini (so few of whose authentic works, executed at a time when classical influence on the Renaissance was very strong, have been preserved), the first prepared for Pope Clement VIII., and the second for Alexander, first Duke of Florence. The latter bears the figures of SS. Cosmas and Damianus, and was considered by the artist himself to be the most beautiful coin in Christendom.

"One circumstance contributed in no small degree to the excellence of coins of the Renaissance period, namely, that the training of the great painters, many of whom designed coins, commenced in the goldsmith's workshop, where they gained a practical knowledge of metal work as

well as delicacy of execution. The influence of Renaissance work, however, on the English coinage must have been very slight. It might have been otherwise if Cellini, who resided in France and executed work for Francis I., had also accepted the invitation of Henry VIII. to visit his court, where, as pointed out in my Report for last year, the Teutonic influence of Holbein was evident.

"Of conventional ornament but few examples can be given, although its influence on coinage must always be very great. It would be difficult, perhaps, to select a better example than that of the lily which was the well-known emblem of the city of Florence. The gold florins bearing this design were, according to Le Blanc, first struck in 1068, and it was in use, with hardly any variations, for many centuries. So universally, indeed, was it imitated, that the coins bearing it may be said to have served the purposes of an international currency. The coin, No. 16, given in the plate, is of a rather late type, but the modifications of the original design were but slight.

"No. 20 is a coin of Akbar, Mogul of Hindustan from 1556 to 1605, which is in many respects remarkable, as underneath the principal design of the coin, the surface is covered with a delicate spiral arabesque, which differs from true Arab art in being slightly instead of wholly conventional. It serves to represent various branches of oriental art, of which other illustrations cannot be given.

"I must not omit to refer to the use which has at different times been made of the reverses of coins to commemorate historical events. This was especially the case in the Papal series, and indeed Evelyn's remark that reverses of medals are 'so infinitely fruitful and full of erudition that, had we a perfect and uninterrupted series of them, we should need almost no other history,' is also true of coins. With regard to the reverses adopted in this country at the general re-coinage of gold and silver in 1817, Ruding expresses his regret that advantage should not have been taken of the opportunity to 'render the reverses of our coins historical records,' and alludes to 'a pattern crown by Mr. W. Wyon, which, in the true spirit of classical historical coinage, commemorates the legislative union with Ireland.'

"It is easy to trace in the reverses of modern coins the gradual decline of art from the reign of Anne to the beginning of the present century, and, on the Continent, the artistic corruption which pervaded the period antecedent to the French Revolution. The fact that coins have not always exactly reflected contemporary work has already been pointed out, and it is not surprising, therefore, that the coins of the present day hardly represent the revived appreciation of art which is evident in this country and throughout Europe. There appears to be a feeling that the reverses of coins should express, either in words or figures, their denomination or value; but I can hardly think that the practice of thus inscribing money is necessary or even advantageous. In a well-arranged

system of currency the coins of each metal should be of but few denominations, readily distinguishable from each other, and it is scarcely too much to say that in every country one of the first things learnt by a child or a stranger is the relative value of the coins in common use. During the last half-century the efforts to secure an artistic reverse have been few and ineffectual, and both in this country and abroad the public taste appears to have been satisfied with such a design as a wreath surrounding words or figures indicating the value of the coins. It is difficult, therefore, to suggest what would be an acceptable device for the reverse of British coins, but it will, I think, be admitted that this indifference to beauty of design is no sufficient reason for perpetuating so feeble a method of treatment as that just mentioned and displayed in the example given, No. 29. The office of the decorative arts has been well described to be that of giving pleasure in things which must perforce be used, and it may at least be hoped that excellence of design and workmanship will eventually combine to secure the fulfilment of this condition in the coins of the realm.

"I must again acknowledge the valuable information and advice which I have received from Mr. Poole, Keeper of Coins and Medals at the British Museum, and the officers of his Department, and the assistance rendered by Mr. Roberts, Chemist of the Mint, in the preparation of this part of my Report."

NOTES.

AT LENGTH we are in a position to announce that the Livery Companies of the City, in a comprehensive scheme of technical education which they have formulated, and to which they ask the adhesion of the Corporation, state that except in the introduction of a new industry or the revival of an old one, their efforts will be the better directed in giving to those employed in manufactures the knowledge of the scientific or the artistic principles upon which the particular manufacture may depend, rather than by teaching the workman to be more expert in his handicraft. They recommend the formation of a central institution and local trade schools, the latter to be established by local efforts, but supplemented by grants from the companies' fund, which fund they propose should amount to 20,000*l.* per annum; also that they should out of this money provide exhibitions, assist technical classes already established, etc. A sum of 11,582*l.* has been promised, viz., the Mercers', Drapers', Goldsmiths', Fishmongers', and Clothworkers' Companies, 2,000*l.* each; the Armourers and Braziers' Company, 525*l.*; the Salters' and Ironmongers' Companies, 300*l.* each; Cordwainers' Company, 250*l.*; the Coopers' Company, 105*l.*; the Plasterers' Company, 52*l.* 10*s.*; and the Needle-makers' Company, 50*l.*

A VISIT to the ancient work lately exhibited at the Royal School of Art Needlework at South Kensington, must have

been an intellectual treat as well as a source of instruction to all those who take an interest in Art. This collection is not only remarkable for the ingenuity of the work, but also for perfection in colour and beauty in design.

For convenience we propose to classify the various productions under three heads, viz.: 1st, those pre-eminent for good design; 2ndly, such as excel in workmanship; 3rdly, articles interesting from historical interest attached to them apart from their Art value.

The Italian needlework claims the first place in the first division; the older and more modern specimens showing alike masterly draughtsmanship and often exquisite harmony of colour. Amongst the older examples of Spanish work are to be found some pieces of fine design, but the latter productions appear to have been strongly influenced by French taste. Old English needlework also is well represented.

Some portraits completely executed in floss silk, rank in our second division; one lent by Stannard, Warne, and dating from the 18th century, was especially worthy of notice. Several hangings from Goa or Portugal, executed in what is technically called "laying-down stitch," were exceedingly handsome, although at times the colouring might be considered slightly crude. Some landscapes worked in black silk, and closely resembling engravings, were also worthy of mention, whilst gold thread embroidery worked in Spain was unrivalled. We must also mention an early 18th century casket of Italian work, having a pictorial representation of Rebecca at the Well embroidered upon the lid.

Amongst objects of individual interest must be considered an elaborately embroidered pall, used at the funeral of the celebrated Sir William Walworth, Lord Mayor of London in the time of Richard II. and the slayer of Wat Tyler. This is in good preservation, and was lent by the Fishmongers' Company.

An old cope of the 15th century, enriched with gold thread and small figures in floss silk, now in a very dilapidated condition, was lent by the Dean and Chapter of Durham, in which cathedral it was in constant use until A.D. 1759. Some old specimens of church work were sent in by St. Mary's College, Ascot, and an old altar-cloth comes from Dunstable, on which is depicted St. John the Baptist preaching in the Wilderness. This was originally bestowed upon the monastery of the Black Friars by Henry and Agnes Hayrley, who, according to a brass tablet found in that town, died in the 15th century. There were also some articles of minor interest, such as work executed by the ladies of Queen Elizabeth's court or which belonged to persons of note.

A GREAT impetus has been given to the twine industries by the admirable inventions of Messrs. Seydel and Co., whose speciality is the production of hammocks of improved pattern, which are growing in public favour since the period of the Ashantee War, when Seydel's invention was proved to possess many advantages over the older forms of hammocks in use up to that time. For sleeping in, or for resting beneath the shade of trees on a march, or on active service, or on a pleasure excursion, we know of no more pleasant rest than that afforded by the pocket hammock.

THE FIRST INDUSTRIAL EXHIBITION ever held in the South of England, will be opened at Weymouth from July 25 to August 8. The exhibition is intended to develop the inventions, designs, and trade of the county, natives of Dorset only being allowed to exhibit, and prizes and certificates are to be awarded in a variety of classes, varying from machinery and pottery to dolls and musical instruments,

from saddlery, printing, and jewellery, to needlework, painting, and natural history. There are also special prizes for hand-writing, for essays on Dorset industries, and for the blind. The Earl of Shaftesbury is president of the exhibition, and it is hoped that the movement may greatly interest the working classes, and lead them to the better employment of their leisure hours.

VISIT OF ARTISAN REPORTERS TO THE PARIS EXHIBITION.

—This movement, which was set on foot by the Prince of Wales, is attracting considerable attention in the various manufacturing districts of the kingdom. Birmingham, Bristol, and Edinburgh have already reported to the committee sitting at the Society of Arts that active steps are being taken to promote this important work, and subscription-lists have been opened for aiding to defray the expenses of sending over skilled workmen in various trades. Already many of the City companies have promised subscriptions. The Cloth-workers give 100*l.*; the Drapers, 50 guineas; the Fishmongers, 25 guineas; the Carpenters, 10 guineas; the Salters, 10 guineas. The Prince of Wales subscribes 50*l.*; the Royal Commissioners, 100 guineas; and the Society of Arts, 100 guineas. It is understood that arrangements have already been made by which the artisans sent over will have secured to them both lodgings and board on reasonable terms, and, besides, will have facilities given them for visiting industrial establishments in Paris. In return, it is made a condition that each artisan thus assisted must present a written report on his own special industry. These will be collected and printed for publication at a cheap rate.

SOME MEMBERS of the Society of Arts, and others, who know the history and progress of the society during the last quarter of a century, and feel how much of its success during that long term has been due to the judgment, zeal, and devotion of its chief executive officer, the secretary, Mr. Peter Le Neve Foster, have associated themselves together to present him, on the occasion of his completing twenty-five years' service, with a substantial testimonial in money, as an expression of their respect.

THE *Pall Mall Gazette* says that Venezuela seems to be curtailing her dealings with British manufacturers, and giving orders for American goods, and considers it not improbable that English goods may be crowded out of the Venezuelan market altogether. It concludes with the observation that—"As regards 'tricks of the trade' practised by British manufacturers, Venezuela should not be very forward to complain. She owes us a considerable debt, which we lent to her with our usual simplicity, and our manufacturers have every right to assume that she is not over-scrupulous on the subject of honesty." This may be all very well, if one might assume that two wrongs make a right. The English manufacturer can hardly be compared to the English bondholder. The former presumably sends goods of a declared quality. For these goods he receives payment. The transactions are between private individuals, and if the Venezuelan purchaser finds out that the English manufacturer does not sell him the article he professes to supply, he is perfectly right to seek some other source, where he can get an unadulterated article. To urge as a plea, in extenuation of adulteration by English manufacturers, that other Englishmen have been defrauded by the Venezuelan Government, is not worthy the name of an argument.



LIST OF ILLUSTRATIONS.

	PAGE
The ornament forming the panel on the opening page of this number is from a design of Mich. Le Blond, who lived from 1587 to 1656. His works were greatly appreciated during the period when artistic designs were eagerly sought for by decorators in every department of Industrial Art	1
The initial letter H is from a Zurich artist's design which appeared in 1536. The subject is from the Bible story of the children who jeered at the old Prophet, and were devoured by a bear	2
The story of Io watched by Argus. The picture attributed to Apelles, from Woltmann's "Geschichte der Malerei"	3
Specimens of Turkish pottery of modern manufacture, but in strict resemblance to the oldest ware produced at Gallipoli, near Constantinople. There are other illustrations of specimens of this green and gold ware scattered through the pages of this periodical, which are capable of being identified with the forms in common use in Persia and India at the present day	5
The design containing grotesque masks and other fanciful decorative objects is from a work by J. Androuet du Cerceau, who lived from 1515 to 1585. Many choice illustrations of this artist are known, his refined taste having a large share in the art embellishments of the Renaissance period	7
Houses from "the Street of the Nations." One an elaborate edifice of terra-cotta and red brick, embossed with coloured marbles, or their imitative substitutes, the manufacturers and exhibitors being Messrs. Doulton and Co., who received the design for this striking and novel erection from Messrs. Tarring and Wilkinson, the furniture and decorations being by Messrs. Shoolbred and Co. The other, one of Mr. Gilbert Redgrave's designs, the builders and exhibitors of which structure are Messrs. W. Cubitt and Co. It represents a half-timbered building of that kind which abounds in the walled city of Chester, and which has proved itself to be one of the most enduring forms of dwelling-house ever adopted by English architects. Mere battens, superficially affixed to the outer walls, indicate the position of supposed beams, the material being pitch-pine	9
Elegant specimens of porcelain in fine glaze, which has undergone during the process of manufacture intense heat. These specimens of Haviland ware are now becoming very popular amongst collectors, who thoroughly comprehend the spirit of the work; the colours are rich and harmonious, adapting themselves to the modern style of decoration with singular grace and fitness	11
Arm-chair from a fine design of the eighteenth century, in walnut wood and crimson morocco leather	13
Stool of inlaid wood and embroidered cloth, copied from a missal of great age. The decorations are in perfect keeping with the style represented	17
The coffer in ebony and ivory is an elegant reproduction of a choice work of the sixteenth century, by the well-known decorative artist Battista Gatti, of Rome	19
Of the many suggestive designs in woven and wrought textile fabrics in the Paris Exhibition, those coming from the remote east are interesting from the suggestions they convey to artistic designers and ornamentists. The specimen here given is of a woven fabric from Java	21
The design for a carpet or floorcloth has much to recommend it, the surface being fairly covered with decorative pattern	23
An improved Landau by Messrs. Harrison and Son, at the Paris Exhibition	25



